

455 Capitol Mall Suite 350 Sacramento CA 95814 Tel • 916.441.6575 Fax • 916.441.6553

DOCKET

09-AFC-8

DATE MAY 20 2010

RECD. MAY 20 2010

May 20, 2010

California Energy Commission **Docket Unit** 1516 Ninth Street Sacramento, CA 95814-5512

Subject:

GENESIS SOLAR, LLC'S OPENING TESTIMONY GENESIS SOLAR ENERGY PROJECT

DOCKET NO. (09-AFC-8)

Enclosed for filing with the California Energy Commission is the original of GENESIS SOLAR, LLC'S OPENING TESTIMONY for the Genesis Solar Energy Project (09-AFC-8).

Sincerely,



BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA 1516 NINTH STREET, SACRAMENTO, CA 95814 1-800-822-6228 – www.energy.ca.gov

APPLICATION FOR CERTIFICATION FOR THE GENESIS SOLAR ENERGY PROJECT

Docket No. 09-AFC-8

PROOF OF SERVICE (Revised 5/12/10)

APPLICANT

Ryan O'Keefe, Vice President Genesis Solar LLC 700 Universe Boulevard Juno Beach, Florida 33408 E-mail service preferred Ryan okeefe@nexteraenergy.com

Scott Busa/Project Director Meg Russel/Project Manager Duane McCloud/Lead Engineer NextEra Energy 700 Universe Boulvard Juno Beach, FL 33408 Scott.Busa@nexteraenergy.com Meg.Russell@nexteraenergy.com Duane.mccloud@nexteraenergy.com E-mail service preferred Matt Handel/Vice President Matt.Handel@nexteraenergy.com Email service preferred Kenny Stein, **Environmental Services Manager** Kenneth.Stein@nexteraenergy.com

Mike Pappalardo
Permitting Manager
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Eugene, OR 97405
mike.pappalardo@nexteraenergy.com

Kerry Hattevik/Director West Region Regulatory Affairs 829 Arlington Boulevard El Cerrito, CA 94530 Kerry.Hattevik@nexteraenergy.com

APPLICANT'S CONSULTANTS

Tricia Bernhardt/Project Manager Tetra Tech, EC 143 Union Boulevard, Ste 1010 Lakewood, CO 80228 Tricia.bernhardt@tteci.com James Kimura, Project Engineer Worley Parsons 2330 East Bidwell Street, Ste.150 Folsom, CA 95630 James Kimura@WorleyParsons.com

COUNSEL FOR APPLICANT

Scott Galati Galati & Blek, LLP 455 Capitol Mall, Ste. 350 Sacramento, CA 95814 sgalati@gb-llp.com

INTERESTED AGENCIES

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INTERVENORS

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ENERGY COMMISSION

JAMES D. BOYD Commissioner and Presiding Member jboyd@energy.state.ca.us

ROBERT WEISENMILLER Commissioner and Associate Member rweisenm@energy.state.ca.us

Kenneth Celli Hearing Officer kcelli@energy.state.ca.us

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Robin Mayer Staff Counsel rmayer@energy.state.ca.us

Jennifer Jennings
Public Adviser's Office
publicadviser@energy.state.ca.us

DECLARATION OF SERVICE

I, Marie Mills, declare that on May 20, 2010, I served and filed copies of the attached **GENESIS SOLAR**, **LLC'S OPENING TESTIMONY** dated **May 20, 2010**. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: [http://www.energy.ca.gov/sitingcases/genesis_solar].

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(Check all that Apply)

to the proceeding.

| , | FOR SERVICE TO ALL OTHER PARTIES: |
|-----|--|
| X | sent electronically to all email addresses on the Proof of Service list; |
| | by personal delivery; |
| X | by delivering on this date, for mailing with the United States Postal Service with first- class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses NOT marked "email preferred." |
| AND | |
| | FOR FILING WITH THE ENERGY COMMISSION: |
| X | sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (<i>preferred method</i>); |
| OR | |
| | depositing in the mail an original and 12 paper copies, as follows: |
| | CALIFORNIA ENERGY COMMISSION Attn: Docket No. 09-AFC-8 1516 Ninth Street, MS-4 Sacramento, CA 95814-5512 |
| | docket@energy.state.ca.us |

Marie Mills

I declare under penalty of perjury that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party

Genesis Solar LLC's Opening Testimony

Genesis Solar Energy Project (09-AFC-8)

May 20, 2010

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF Scott A Busa

- I, Scott A Busa, declare as follows:
 - 1. I am presently employed by NextEra Energy Resources, LLC, as a Director of Business Development.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Executive Summary and Project Description for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, FL on May 18, 2010.

Scott A Busa

Dest C. Busa

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF E. Trent Heidorn

I,E. Trent Heidorn, declare as follows:

- 1. I am presently employed by NextEra Energy, as a Construction Manager.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to the Project Description for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, Florida on May 19, 2010.

E. Trent Heidorn

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF

Kenneth Stein

- I, Kenneth Stein, declare as follows:
 - 1. I am presently employed by NextEra Energy Resourcess, LLC, as an Environmental and Permitting Manager.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - I prepared the attached testimony relating to Project Description for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed in Ft. Lauderdale, FL on May 18, 2010.

Cenneth Stein

Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 09-AFC-08

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DECLARATION OFP. Duane McCloud

I, P. Duane McCloud, declare as follows:

- 1. I am presently employed by NextEra Energy Resources, LLC., as a Lead Professional for Construction and Engineering.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to the Project Description for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, Florida on May 16, 2010.

P. Duane McCloud

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OFJared Foster

- I, Jared Foster, declare as follows:
 - 1. I am presently employed by WorleyParsons, as a Principal Mechanical Engineer.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Project Description for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on May 18, 2010.

Jared Foster

GENESIS SOLAR ENERGY PROJECT PROJECT DESCRIPTION OPENING TESTIMONY

I. Name:

Scott A Busa, E. Trent Heidorn, Kenneth Stein, P. Duane

McCloud and Jared Foster

II. Purpose:

My testimony addresses the subject of Executive Summary and Project Description associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

Scott A. Busa: I am presently employed at NextEra Energy Resources, and have been for the past 21 years and am presently a Director with that organization. I have over 23 years of experience development, construction, and operation of Electrical Utilities and Power Generation. I prepared or assisted in the preparation of the Executive Summary and Project Description sections of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

E. Trent Heidorn: I am presently employed at NextEra Energy, and have been for the past 5 years and am presently a Construction Manager with that organization. I have a BSCE Degree in Civil Engineering and I have over 30 years of experience in the field of Power Plant Construction. I prepared or assisted in the preparation of the Project Description section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Kenneth Stein: I am presently employed at NextEra Energy Resources, and have been for the past 6 years and am presently an Environmental and Permitting Manager with that organization. I have a B.S Degree in Environmental Science and a Law Degree with a focus in Environmental Law and I have over 20 years of experience in the field of Environmental Permitting. I prepared or assisted in the preparation of the Project Description section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

P. Duane McCloud: I am presently employed at NextEra Energy Resources, LLC., and have been for the past 12 years and am presently a Lead Professional with that organization. I have a B.S. Degree in Chemical Engineering and I have over 28 years of experience in the field

of power generation. I prepared or assisted in the preparation of the Project Description section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

<u>Jared Foster:</u> I am presently employed at WorleyParsons, and have been for the past 4 years and am presently a Principal Mechanical Engineer with that organization. I have a Bachelor Degree in Mechanical Engineering and I have over 8 years of experience in the field of Mechanical Engineering. I prepared or assisted in the preparation of the Project Description section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

| Exhibit 1 | Application for Certification Vol I & II, dated August 2009, and docketed on August 31, 2009, Section 1.0. |
|------------|--|
| Exhibit 6 | BLM Notice of Intent - Federal Register, dated November 23, 2009, and docketed on December 3, 2009. |
| Exhibit 9 | Joint CEC - BLM 12-10-09 Hearing and Scoping Presentation, dated December 10, 2009 and docketed on December 14, 2009. |
| Exhibit 12 | Genesis Solar, LLC's Informational Hearing & Site Visit Presentation, dated, and docketed on December 18, 2009. |
| Exhibit 20 | Supplement to the Genesis Surface Drainage Data Requests, dated January 4, 2010, and docketed on January 11, 2010. |
| Exhibit 52 | Genesis Solar LLC's Data Responses to CURE's Data Request Set 3, (1 through 2), dated May 2010, and docketed on May 3, 2010. |
| | |

V. Opinion and Conclusions

We have reviewed the Executive Summary and Project Description sections of the Staff Assessment and provide the following changes to the Project Description section of the Staff Assessment/Draft Environmental Impact Statement. After the Revised Staff Assessment is published Genesis may need to modify the requested changes below.

Genesis requests that the following two bullet-point lists be modified as follows to reflect the project components.

Page B.1-2 and 3, Major Facilities and Site Arrangement

- Overall project facilities include the following major components: Solar field(s);
- Power block;
- Access road from I-10 (Wiley Wells exit) to onsite office;
- Office and parking;
- Water supply and treatment infrastructure
- LTU (Land Treatment Unit) for bioremediation of HTF-contaminated soil,
 Maintenance buildings and laydown area; and,
- Onsite transmission facilities including switchyard.

Each 125 MW power plant (one for the eastern solar field, and one for the western solar field) consists of:

- STG (Steam Turbine Generator);
- SSG (Servicing Scenario Solar Steam Generator) heat exchangers;
- Surface condenser;
- Feedwater pumps;
- Deaerator
- Feedwater heaters
- Wet cooling tower
- Evaporation ponds
- Natural gas-fired boilers
- Emergency Diesel Generator

- Emergency Fire Pump
- Solar thermal collection field

Page B.1-3 and 4, Power Generation Process

- The power generating facility is composed of the following major components: Deaerator,
- Feedwater pumps,
- Feedwater heaters,
- SSG,
- Steam superheater,
- Steam reheater
- STG
- ACC Cooling Tower
- Between 850 acres and aApproximately 1,700 acres of parabolic trough solar collection fields, and HTF piping, pumping, and conditioning system, depending on which alternative is approved

Then, in the last paragraph of this section, same page, change the following:

Red lines on the diagram represent HTF piping. Hot HTF flows from top to bottom in the figure, arriving from the solar fields (having captured the sun's energy) and transferring this heat from the sun to the superheater and reheater; from where it then moves the heat energy to the steam generator; and, lastly the HTF flows to the preheater before returning to the solar fields to be heated once again in a continual cycle of renewable, clean energy. The blue lines represent steam and water piping. Feedwater, the portion of the blue line between the ACC-wet cooling tower and the preheater, is heated in a series of feedwater heaters by steam turbine extractions at various pressure levels.

Page B.1-5, Parabolic Trough Collector Loop

Each of the collector loops consist of two adjacent rows of SCAs **and** each row is about 1,300 feet long. the two rows are connected by a crossover pipe. HTF is heated in the loop and enters the header, which returns hot HTF from all loops to the power block where the power generating equipment is located.

Page B.1-5, Auxiliary Boiler, first sentence

Genesis requests that the following sentence be modified to reflect the correct usage of the auxiliary boiler

The auxiliary boiler will be fueled by natural gas and will provide steam for maintaining steam cycle equipment vacuum over night and for maintaining steam turbine temperatures overnight, for HTF freeze protection, and for startup.

Page B.1-5, Water Treatment, second paragraph

Genesis requests the following additional language be inserted to describe the MMF and RO process.

Water is cycled in the cooling tower until the concentration of chemical constituents rises to levels where it becomes unusable and it is blown down as a waste stream. The number of cycles undertaken are called cycles of concentration (COC). The number of COCs in the cooling tower is limited by the incoming water chemistry and the behavior of chemistry constituents as the concentration increases. Without any pre-treatment of the raw water ("makeup water") from groundwater on site, the calcium concentration would limit the process to about five COCs due to the potential to form calcium carbonate (CaCO₃) scale, and silica would limit the process to 10 COCs due to the formation of silica (SiO₂) and magnesium silicate scale. Because of the limitation of

these constituents in the process, pre-treatment of the makeup water is desirable to reduce the quantity of makeup water required. The pre-treatment design for the Project takes into account the relatively high concentrations of chloride and sodium present in the makeup water to the site. As the makeup water has high concentrations of highly-soluble species (e.g., sodium, chloride and sulfate), and relatively low concentrations of lower-solubility species (e.g., calcium and magnesium), a multi-media filter (MMF) and two-stage reverse osmosis (RO) unit was selected for pre-treatment upstream of the cooling tower. The MMF removes solids or particulates from the makeup water that may damage or reduce the efficiency of the RO membranes. In the two-stage RO design, the waste stream from the first-stage RO unit is fed into the second-stage RO for additional water recovery, and the treated water from both units combine and are stored in the treated water storage tank before use in the cooling tower. The waste stream from the MMF unit is discharged into the on-site evaporation ponds and waste stream from the second RO unit is discharged into the wastewater storage tank.

A pre-treatment RO unit provides the benefit of reducing the concentration of total dissolved solids (TDS), as well as removing most of the calcium and silica from the makeup water, thus allowing the cooling tower COCs to increase to 15.

As aforementioned, there are several tanks on site which will contain the raw water, treated water, and wastewater, which will have the following capacity:

Page B.1-18, Power Generation Facility

Genesis requests the revision to amount of months for construction.

Major milestones of the planned Project construction schedule are as follows:

- Begin construction Unit 1: Month 1
- Startup and test Unit 1: Month 21
- Commercial operation Unit 1: Month 25
- Begin construction Unit 2: Month 12
- Startup and test Unit 2: Month 33
- Commercial operation Unit 2: Month 3937

Project construction is expected to occur over a total of 3937 months.....

Page B.1-27, Advantages and Disadvantages of Dry Cooling

Genesis takes issue with the delineation of assumed facts in these sections and requests that a more objective analysis would include the following:

Advantages of Dry Cooling Systems

- Dry cooling allows a power plant location to be independent of a water source. It has essentially no water intake or water discharge requirements.
 Dry cooling would reduce the use of ground water and discharge requirements.
- Dry cooling minimizes the use of water treatment chemicals. Dry cooling minimizes the generation of liquid and solid wastes.
- Dry cooling does not generate visible plumes that are commonly associated with wet cooling towers.
- Dry cooling may eliminates impacts to aquatic biological resources.
- Dry cooling eliminates the need for discharge permits.
- Dry cooling may eliminates the need for disturbance of wetland/aquatic substrate habitat.

Disadvantages of Dry Cooling Systems

 A dry cooled project of the same size and output as the proposed project will not produce as much power annually as the proposed project; therefore, may be difficult to financially justify.

- Dry cooling does not eliminate the need for discharge permits.
- For a dry cooled project to produce the same power annually as the proposed project a larger land area would need to be disturbed for installation of the solar field, due to the decrease in cycle efficiency.
- Using dry cooling, the power plant steam cycle efficiency and output can be slightly will be measurably reduced depending on site conditions and seasonal variations in ambient conditions for plants located in the desert region. Also, extra power is needed to operate the cooling fans.
- Capital costs for building air-cooled condensers are generally higher than capital costs for **wet cooling** once through cooling.
- Dry cooling requires air-cooled condensers which are much larger then cooling towers; therefore, have a larger visual impact condensers that could have negative visual effects.
- Compared to once-through cooling, dry cooling requires the disturbance of a larger area for the air-cooled condensers than that required for cooling towers.
- Dry cooling can have noise impacts that are greater than once-through or wet cooling systems because of the number of fans and the considerably greater total airflow rate. New quieter fans and other mitigation measures are available to reduce these impacts.

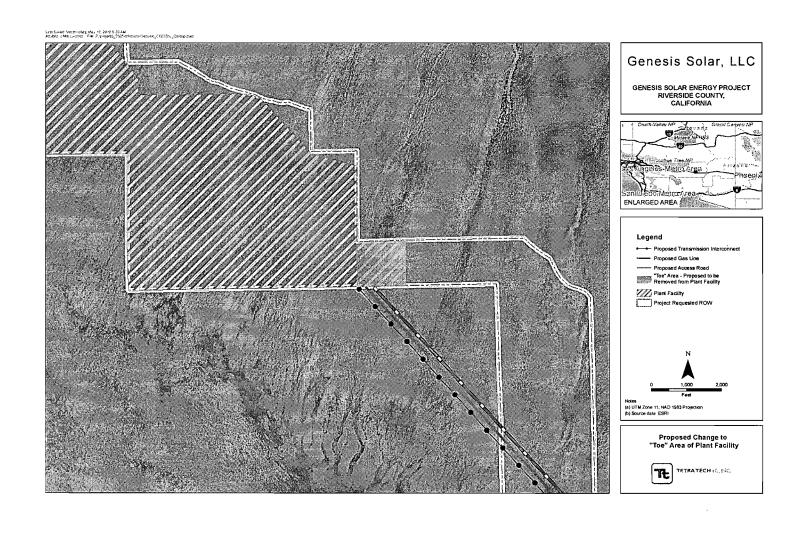
In closing, Genesis wishes to clarify the Project Description and Objectives to be attained as set forth in the AFC, Workshops, Responses to Data Requests and Workshop Queries that confirm the benefits of the project far outweigh the impacts, whether mitigation is required or not.

The objectives for the Genesis Solar Energy Project can be summarized as follows:

- 1) To construct, operate, and maintain an efficient, economic, reliable, safe, and environmentally sound solar powered generating facility throughout its useful life to help: (i) achieve the State of California objectives mandated by SB 1078 (California Renewable Portfolio Standard Program); (ii) AB 32 (California Global Warming Solutions Act of 2006); and (iii) other local mandates adopted by the State's municipal electric utilities to meet the requirements for the long-term wholesale purchase of renewable electric energy for distribution to their customers. In turn, displacing older, less reliable, gas powered, GHG producing, power plants.
- 2) To develop a site with an excellent solar resource.
- 3) To develop a site with close proximity to transmission infrastructure in

- order to minimize environmental impacts.
- 4) To develop a new utility-scale solar energy project using proven concentrated solar trough technology.
- 5) To develop a site with available water resources for operational use in order to optimize power generation efficiency and reduce project cost.
- 6) Develop and design the Genesis Solar Energy Project to conform to the requirements of the 30-year Power Purchase Agreement (PPA)
- 7) Address State, regional and local mandates that California's electric utilities have adopted for the provision of renewable energy.
- 8) Assist the California Independent System Operator (CAISO) in meeting its strategic goals for the integration of renewable resources, as listed in its Five-Year Strategic Plan for 2008 to 2012.
- 9) Help to meet the need for additional energy supply, a need based on the steadily growing annual demand of the California energy market whose load growth is expected to average 1000 megawatts (MW) per year over the next five years.
- 10) From both a State and a regional perspective, contribute to reductions in greenhouse gas emissions. Specifically, each 125-MW solar unit is expected to generate approximately 290,000 megawatt-hours (MWh) per year and will displace the use of approximately 4 billion cubic feet of natural gas typically used by modern high-efficiency natural gas-fired power plants, and reduce the emissions of carbon dioxide (CO2) (a greenhouse gas) by approximately 250,000 tons per year, when compared to a high-efficiency natural gas plant.
- 11) The location selected for the Project is in an area with good solar direct normal insolation, has sufficient contiguous acreage to build a 250 MW facility, is near transmission, and has level site topography and relative ease of access to the Project Site.
- 12) The site selection, project configuration and technology must be, and have been, designed to meet the criteria and objectives expressed above for the benefit of the state and the people of the state, which include:
 - Maximization of energy output at 250MW; the configuration and solar insolation levels capable of efficiently generating greater than 7.0 kilowatt-hours per day per square meter
 - Efficient delivery of the maximum energy output without burden to the transmission interconnection system in order to ensure the projects economic viability and the concomitant lower delivery and consumer prices
 - c) Selection of reasonably priced land with the proper slope to be able to ensure the most efficient use of the land for maximum energy output; in turn, preventing the visual redundancy of multiple sites in various locations in the desert region
 - d) Minimize cost and potential environmental impacts by locating close to an existing transmission system without the need for new, long dedicated transmission lines, while also providing

- good access to water for power plant use.
- e) Eliminating potential project locations, configurations and generation and cooling technologies that do not meet the project objectives and criteria above needed to meet the environmental stewardship, public benefit, cost control and commercial objectives of the designed project



Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF Scott A Busa

- I, Scott A Busa, declare as follows:
 - 1. I am presently employed by NextEra Energy Resources, LLC, as a Director of Business Development.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Alternatives for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, FL on May 18, 2010.

Scott A Busa

Danc, Busa

Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 09-AFC-08

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DECLARATION OFKenneth Stein

I, Kenneth Stein, declare as follows:

- 1. I am presently employed by NextEra Energy Resourcess, LLC, as an Environmental and Permitting Manager.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Alternatives for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed in Ft. Lauderdale, FL on May 18, 2010.

Kenneth Stein

Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 09-AFC-08

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DECLARATION OF MEG E. RUSSELL

I, MEG RUSSELL, declare as follows:

- 1. I am presently employed by NextEra Energy Resources, LLC., as a Project Director in Business Development.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- I prepared the attached testimony relating to Alternatives for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, Florida on May 18, 2010.

Meg E. Russell

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF

P. Duane McCloud

I, P. Duane McCloud, declare as follows:

- 1. I am presently employed by NextEra Energy Resources, LLC., as a Lead Professional for Construction and Engineering.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to the Alternatives for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
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I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, Florida on May 16, 2010.

P. Duane McCloud

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF
Jared Foster

I, Jared Foster, declare as follows:

- 1. I am presently employed by WorleyParsons, as a Principal Mechanical Engineer.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Alternatives for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on May 18, 2010.

Jared Foster

GENESIS SOLAR ENERGY PROJECT ALTERNATIVES OPENING TESTIMONY

I. <u>Name</u>:

Meg E. Russell, Scott A. Busa, Kenneth Stein and Jared

Foster

II. Purpose:

Our testimony addresses the subject of Alternatives associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

Meg E. Russell: I am presently employed at NextEra Energy Resources, LLC., and have been for the past two years and am presently a Project Director with that organization. I have a Masters Degree in Business and I have over nine years of experience in the field of Project/Program Management. I prepared or assisted in the preparation of the Alternatives section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Scott A. Busa: I am presently employed at NextEra Energy Resources, and have been for the past 21 years and am presently a Director with that organization. I have over 23 years of experience development, construction, and operation of Electrical Utilities and Power Generation. I prepared or assisted in the preparation of the Alternatives section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Kenneth Stein: I am presently employed at NextEra Energy Resources, and have been for the past 6 years and am presently an Environmental and Permitting Manager with that organization. I have a B.S Degree in Environmental Science and a Law Degree with a focus in Environmental Law and I have over 20 years of experience in the field of Environmental Permitting. I prepared or assisted in the preparation of the Alternatives section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

<u>Jared Foster:</u> I am presently employed at WorleyParsons, and have been for the past 4 years and am presently a Principal Mechanical Engineer with that organization. I have a Bachelor Degree in Mechanical Engineering and I have over 8 years of experience in the field of

Mechanical Engineering. I prepared or assisted in the preparation of the Alternatives section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

| Exhibit 1 | Application for Certification Vol I & II , dated August 2009, and docketed on August 31, 2009, Section 3.10. |
|------------|--|
| Exhibit 11 | Data Requests Set 1A Responses (1 through 227), dated December 14, 2009, and docketed on December 15, 2009, Responses 39 through 52. |
| Exhibit 12 | Genesis Solar, LLC's Informational Hearing & Site Visit Presentation, dated, and docketed on December 18, 2009. |
| Exhibit 52 | Genesis Solar LLC's Data Responses to CURE's Data Request Set 3, (1 through 2), dated May 2010, and docketed on May 3, 2010. |

V. Opinion and Conclusions

Genesis and Staff have had productive discussions at the Staff Assessment Workshops and while Genesis disagrees with the SADEIS contention that the dry cooling alternative is preferred alternative we will file testimony on alternatives after the Revised Staff Assessment has been published.

Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 09-AFC-08

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DECLARATION OFKenneth Stein

I, Kenneth Stein, declare as follows:

- 1. I am presently employed by NextEra Energy Resourcess, LLC, as an Environmental and Permitting Manager.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Air Quality for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed in Ft. Lauderdale, FL on May 18, 2010.

Cenneth Stein

Energy Resources Conservation and Development Commission

in the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF

P. Duane McCloud

I, P. Duane McCloud, declare as follows:

- 1. I am presently employed by NextEra Energy Resources, LLC., as a Lead Professional for Construction and Engineering.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to the Air Quality Resources for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, Florida on May 16, 2010.

P. Duane McCloud

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OFJared Foster

I, Jared Foster, declare as follows:

- 1. I am presently employed by WorleyParsons, as a Principal Mechanical Engineer.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Air Quality for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on May 18, 2010.

Jared Foster

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF Richard B. Booth

- I, Richard B. Booth, declare as follows:
 - 1. I am presently employed by Tetra Tech EC, Inc., as a Supervising Project Manager.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Air Quality for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Shingletown, CA on May 14, 2010.

Richard B. Booth

Richard B. Booth

GENESIS SOLAR ENERGY PROJECT AIR QUALITY OPENING TESTIMONY

I. Name:

P. Duane McCloud, Richard B. Booth, Kenneth Stein and

Jared Foster

II. <u>Purpose</u>:

Our testimony addresses the subject of the Air Quality Resources associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

P. Duane McCloud: I am presently employed at NextEra Energy Resources, LLC., and have been for the past 12 years and am presently a Lead Professional with that organization. I have a B.S. Degree in Chemical Engineering and I have over 28 years of experience in the field of power generation. I prepared or assisted in the preparation of the Air Quality Resources section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Richard B. Booth: I am presently employed at Tetra Tech EC, Inc., and have been for the past 5 years and am presently a Supervising Project Manager with that organization. I have a BA Degree in Natural Sciences and I have over 34 years of experience in the field of Air Quality. I prepared or assisted in the preparation of the Air Quality section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Kenneth Stein: I am presently employed at NextEra Energy Resources, and have been for the past 6 years and am presently an Environmental and Permitting Manager with that organization. I have a B.S Degree in Environmental Science and a Law Degree with a focus in Environmental Law and I have over 20 years of experience in the field of Environmental Permitting. I prepared or assisted in the preparation of the Air Quality section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

<u>Jared Foster:</u> I am presently employed at WorleyParsons, and have been for the past 4 years and am presently a Principal Mechanical Engineer with that organization. I have a Bachelor Degree in Mechanical Engineering and I have over 8 years of experience in the field of

Mechanical Engineering. I prepared or assisted in the preparation of the Air Quality section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

| Exhibit 1 | Application for Certification Vol I & II , dated August 2009, and docketed on August 31, 2009, Section 5.2 and Appendix B. |
|-----------------------|--|
| Exhibit 2 | Air Quality Modeling Files, dated, and docketed on September 17, 2009. |
| Exhibit 3 | Data Adequacy Supplement, dated October 2009, and docketed on October 12, 2009. |
| Exhibit 5 | Tetra Tech Inc. Informational Letter to Mojave Desert Air Quality Management District regarding Additional Permit Applications, dated October 27, 2009, and docketed on November 18, 2009. |
| | D . D |
| Exhibit 11 | Data Requests Set 1A Responses (1 through 227), dated December 14, 2009, and docketed on December 15, 2009, Responses 1 through 38. |
| Exhibit 11 Exhibit 12 | dated December 14, 2009, and docketed on December |
| | dated December 14, 2009, and docketed on December 15, 2009, Responses 1 through 38. Genesis Solar, LLC's Informational Hearing & Site Visit Presentation, dated, and docketed on |
| Exhibit 12 | dated December 14, 2009, and docketed on December 15, 2009, Responses 1 through 38. Genesis Solar, LLC's Informational Hearing & Site Visit Presentation, dated, and docketed on December 18, 2009. Applicant's Revised Air Quality Responses to the CEC Data Requests, dated, and docketed on |

Exhibit 51

Genesis Solar LLC's Proposed Conditions of Certification for Other Resource Areas, dated April 30, 2010, and docketed on May 3, 2010.

V. Opinion and Conclusions

Genesis Solar LLC, (Genesis) has reviewed the analysis and all conditions of certifications embodied in the SA/DEIS, participated in workshops. Since Genesis is filing this testimony prior to Staff publishing its Revised Staff Assessment, we have included all areas where our opinion differs from the analysis or recommended Conditions of Certification contained in the SA/DEIS. However, since Genesis and Staff made substantial progress at the Staff Assessment Workshops, in an effort to clarify for the Committee the relatively few areas that may need Committee resolution, we have divided this testimony into the following categories.

- Category I Modifications to Conditions of Certification that were proposed by Genesis in its comments on the SA/DEIS and that were accepted by Staff at Staff Assessment Workshops
- Category II Modifications that Genesis and Staff agreed after discussion at Staff Assessment Workshops and would be included in the Revised Staff Assessment
- Category III Modifications to Conditions of Certification that Genesis has proposed that Staff has either rejected or needed additional time or information to consider and any disagreement with Staff's analysis and ultimate conclusions

After the Revised Staff Assessment is published Genesis remains confident that if any Air Quality disputes exist, they will be confined in the third category only.

CATEGORY I GENESIS PROPOSED MODIFICATIONS AGREED BY STAFF

CONDITION OF CERTIFICATION AQ-SC3

Genesis requests the clarifying language be added to the condition to make sure that the performance standard for Conditions of Certification AQ-SC3 and AQ-SC4 are the same.

AQ-SC3 Construction Fugitive Dust Control: The AQCMM shall submit documentation to the BLM's Authorized Officer and CPM in each Monthly Compliance Report that demonstrates compliance with the Air Quality Construction Mitigation Plan (AQCMP) mitigation measures for the purposes of preventing all fugitive dust plumes (as defined in AQ-SC-4) from leaving the project. Any deviation from the AQCMP mitigation measures shall require prior BLM Authorized Officer and CPM notification and approval.

CONDITION OF CERTIFICATION, VERIFICATION (SUB-PART "E")

Genesis requests the following change in the verification.

e. All diesel heavy construction equipment shall not idle for more than five minutes. Vehicles that need to idle as part of their normal operation (*including, but not limited to*such as concrete trucks) are exempted from this requirement.

CATEGORY II. GENESIS AND STAFF JOINT REVISED WORKSHOP MODIFICATIONS

There are no recommended changes to conditions of certification that would fit into this category.

CATEGORY III. DISPUTED CONDITIONS OF CERTIFICATION, ANALYSIS OR CONCLUSIONS

Page C.1-1, Second Paragraph

The Applicant wishes to clarify several points in the Staff statement below.

Staff have concluded that the proposed project would not have the potential to exceed Prevention of Significant Deterioration emission threshold levels during direct source operation and the facility is not considered a major stationary source with potential to cause adverse National Environmental Policy Act air quality impacts. However, without adequate control, the fugitive dust emissions from construction would have the potential to exceed Prevention of Significant Deterioration particulate emission threshold levels. This potential exceedance of a federal air quality emission threshold would be considered a direct, adverse impact under National Environmental Policy Act. This impact would be less than adverse with the proposed mitigation measures controlling fugitive dust emissions during construction.

Genesis requests staff and the committee to consider the following:

- (1) Construction related emissions (secondary emissions) do not count towards PSD applicability per 40 CFR 52.21(b) (4) and (18), i.e., the interplay of "potential to emit" and "secondary emissions" definitions, and the PSD applicability criteria.
- (2) GSEP is not a major source (either for construction or operation) for any identified PSD pollutant. As such, the PSD "significant" emission rates do not apply.
- (3) Genesis did not propose an "uncontrolled" construction phase with respect to fugitive dust emissions. The applicant proposed numerous mitigation measures as an integral part of its construction phase for the control of fugitive dust emissions. The Applicant's proposed controls result in fugitive dust emissions during construction of approximately 46 tons of PM₁₀ over the 3-year construction period, or an annualized emissions level of approximately 15 tons of PM₁₀ per year

(4) Genesis believes that Staff have erred in their application of the PSD emissions thresholds. Applicability of PSD is based on a strict set of applicability criteria as presented in the OAQPS-New Source Review Workshop Manual-10/90, Chapter A, Pages A.1 through A.32.

As such, Genesis concludes that construction emissions are not applicable to, nor do they count towards, a PSD applicability determination. Construction emissions of fugitive dust (PM10 or PM2.5), although not countable towards an applicability determination under PSD, are nonetheless well below the PSD major source applicability threshold of 250 tons per year, and the "significant" emissions rates under PSD do not apply to GSEP construction emissions. Furthermore, the Applicant concludes that there is no potential exceedance of a federal air quality emission threshold and therefore no adverse impact under the National Environmental Policy Act.

Genesis also notes that Staff provides its own clarification on the PSD issue at section C.1.3.4 (bullet item 2), i.e., that PSD applicability thresholds only apply to GSEP operations. This clarification by Staff supports Genesis' statement that "there is no potential exceedance of a federal air quality emission threshold and therefore no adverse impact under the National Environmental Policy Act".

Page C.1-17, First Paragraph

"The applicant used an <u>oversimplified</u> fugitive dust emission calculation method that staff does not consider appropriate for a project with the construction complexity and requirements of GSEP. Staff believes this oversimplified calculation method underestimates the fugitive dust emissions during construction." (emphasis added)

Genesis disagrees with staff that the method used to estimate fugitive dust emissions from construction activities is "oversimplified", and that it underestimates fugitive dust emissions during construction. In Genesis' responses to Data Requests (Request #4, Data Request Set #1, 09-AFC-8, November 13, 2009), Genesis provided a detailed response covering the use of the method chosen as well as a detailed list of credible references to support the method. We reiterate the following summary for the record:

- 1. The method chosen is based upon the Midwest Research Institute studies per (1) Improvement of Specific Emissions Factors-BACM #1, MRI, 3/96, (2) Estimating Particulate Matter Emissions from Construction Operations, USEPA, MRI, 9/99, and (3) MRI Report of 2005 which updates the PM2.5/PM10 ratios developed for the Western Regional Air Partnership (WRAP).
- 2. The method chosen is currently used by the California Air Resources Board for the preparation of its statewide fugitive dust emissions inventories for construction activities, and the method is currently delineated and supported in the CARB Area Source Methodology references (Section 7.7, 9/2002).

- 3. The method chosen is currently delineated in the USEPA, AP-42, Section 13.2.3 (Heavy Construction, 1/1995, corrected 2/2010).
- 4. The method chosen is currently implemented in the URBEMIS model (Version 9.2.4), Users Manual, Appendix A, Page A-6. The URBEMIS model is presently funded by, and guidance is provided by the following California air districts; Bay Area, Feather River, Imperial, Mendocino, Monterey Bay, Placer, Sacramento Metropolitan, San Joaquin Valley Unified, San Luis Obispo, Santa Barbara, South Coast, and Yolo-Solano. In addition, the Applicant is not aware of any California city or county planning agency that does not recommend, sanction, or allow the use of the URBEMIS model in the evaluation of development project construction phase fugitive dust emissions.
- 5. The method chosen is currently implemented by the Western Regional Air Partnership (WRAP) in its revised WRAP Fugitive Dust Handbook (9/06, Chapter 3-Construction and Demolition). The WRAP consists of the following State members: Alaska, Hawaii, Washington, Oregon, California, Arizona, New Mexico, Colorado, Utah, Wyoming, Montana, North Dakota, South Dakota, and Idaho, as well as the following federal agencies, the USDA and the USDOI.
- 6. In addition, the URBEMIS software developers (Rimpo and Associates, Inc.) are currently developing a version of URBEMIS for use in the other 49 states (for use on projects outside of California). The 49-state version will incorporate EPA Mobile 6.2 on-road emissions data as well as EPA NONROAD construction emissions factors. No changes to the construction fugitive dust methodology were noted at this time.

Based on the above, Genesis concludes that the method chosen to estimate fugitive dust emissions from construction activities for GSEP is widely accepted, widely implemented by numerous city, county, state, and federal agencies, and well documented.

In addition, Genesis disagrees with Staff's statement that the method chosen "underestimates" fugitive dust emissions from construction for the following reasons:

• The MRI (1996) report states that "the results from comparing limited emissions measurements to estimated values proved inconclusive, with no clear-cut tendency for over- or under-prediction".

- AP-42 Section 13.2.3 states that "because the above emission factor is referenced to TSP, use of this factor to estimate particulate matter no greater than 10 um in aerodynamic diameter emissions will result in conservatively high estimates. Also, because derivation of the factor assumes that construction activity occurs 30 days per month, the above estimate is somewhat conservatively high for TSP as well." The Applicant assumes that the conservative nature of the overall method per AP-42 is maintained even with the application of the conservative statewide PM10/2.5 fraction values.
- The WRAP Handbook data states that "separate emission factors segregated by type of construction activity provide better estimates of PM10 emissions that are more accurate than estimates obtained using a general emission factor." The applicant partially agrees with this statement, but notes that; (1) the statement only applies to accuracy, not to whether a specific method under- or over-predicts emissions, and (2) the assumption that emissions estimates based on segregated activities "provide better estimates that are more accurate" is not substantiated anywhere in the WRAP Handbook. (See the following comment.)
- Based on data presented in AP-42, the quality ratings of emissions factors (equations and support data) ranges from A to E, i.e., A=excellent, B=above average, C=average, D=below average, and E=poor. Data obtained from the South Coast AQMD website (CEQA page) indicates that for projects seeking to calculate emissions segregated by type of activity, the primary AP-42 sections are, (1) 11.9, (2) 13.2.2, and (3) 13.2.4. A summary review of the quality ratings for factors presented in these sections shows the following:
- Ratings in section 11.9 (Western Mining) for activities such as topsoil scraping/removal, grading, etc., are quality level "E".
- Ratings in section 13.2.2 (Unpaved Roads) for roads being watered and evaluated for future use (prospective analyses), the quality rating drops from level "B" to level "D".
- Ratings in section 13.2.4 (Aggregate Handling and Storage Piles) are generally level "A", but can drop to level "B" or "C" if the site specific data fall outside of the "range of source conditions".

Furthermore, AP-42 Section 13.2.3 (Heavy Construction, Table 13.2.3-1, 2/10) clearly indicates that if the emissions are calculated by activity type using the equations in the various AP-42 sections as noted above, the "quality rating" must be lowered (per the recommended values) due to the application of the method to heavy construction activities. These required adjustments would further reduce the quality level of the calculations, and would by implication impact the level of accuracy of such estimates. This is highlighted by data in this section which

requires no adjustment to factors in Section 11.9 because the quality ratings are already at level "E" (poor).

Genesis concludes that, for many of the onsite construction activities which can be segregated by activity type, the quality ratings are typically in the level "D" to "E" range, and we are not convinced, nor can we find any data which indicates that these quality ratings result in any significant increase of emissions calculation accuracy above the method chosen. Nor does this data result in any meaningful insight into whether fugitive dust emissions are over- or underpredicted by any particular method.

Page C.1-17, footnote 5

Staff is currently in the process of determining a consistent approach for HTF piping component emission factors with other local agencies that are currently permitting thermal solar facilities, where light liquid Synthetic Organic Chemical Manufacturing Industry (SOCMI) factors are being used to estimate VOC emissions for other projects that also use Therminol® VP-1 HTF. Staff will provide a revised emission estimate for this and other emission consistency issues related to the FDOC in the Air Quality Staff Assessment Addendum, if necessary.

Genesis, in its evaluation of fugitive emissions from the solar field HTF use, used "light liquid" emissions factors. It is our understanding that CEC staff may be in favor of applying "heavy liquid" factors to the HTF solar field fugitive scenario. Genesis understands this position given the HTF fluid properties at standard conditions, but it is our opinion, that staff should consider the properties of the HTF fluid under the conditions of its use in the solar field and power generation process. Under actual use conditions, the properties of HTF are clearly those of a "light liquid". It is standard practice, in the process of calculating emissions from various systems, that process parameters such as temperature and pressure are integral inputs to correctly computing emissions. Genesis believes that these parameters cannot be ignored in the evaluation of HTF solar field fugitive emissions calculations, and we suggest that CEC staff consider these issues in their evaluation.

Page C.1-25, Third Paragraph

However, in light of the existing PM10 and ozone non-attainment status for the project site area, staff considers the operation NOx, VOC, and PM emissions to be potentially CEQA significant and recommends that the off-road equipment and fugitive dust emissions be mitigated pursuant to CEQA.

Although Genesis understands the staff criteria for determining significance under CEQA, we are perplexed at how emissions of NOx and VOC from the proposed off-road equipment used onsite during the operations phase could be "potentially CEQA significant". The emissions from the proposed off-road

equipment delineated for onsite use during operations, as well as the MDAQMD CEQA significance thresholds are presented in the table below. The comparison indicates that these emissions are not only "insignificant" but "de minimus" at best, which calls into question the need for further mitigation such as proposed in condition AQ-SC-6.

Comparison of GSEP mobile source related emissions for onsite dedicated equipment versus the MDAQMD CEQA Significance Thresholds.

| • | | | | |
|-----------|--|-----------------------------------|---|--|
| Pollutant | MDAQMD Annual Threshold, tons | MDAQMD Daily Threshold, lbs | GSEP Onsite Mobile Emissions, tpy | GSEP Onsite Mobile Emissions, Ibs/day |
| NOx | 25 | 137 | 0.35 | 0.08 |
| CO | 100 | 548 | 0.24 | 0.05 |
| VOC | 25 | 137 | 0.05 | 0.01 |
| SOx | 25 | 137 | 0 | 0 |
| PM10 | 15 | 82 | 0.03 | 0.01 |
| PM2.5 | 15 | 82 | 0.03 | 0.01 |

The total estimated onsite facility emissions for the operational phase are as follows:

| • | NOx | 1.38 tpy | 42.18 lbs/day |
|---|-------|-----------|----------------|
| • | CO | 0.56 tpy | 17.24 lbs/day |
| • | VOC | 7.62 tpy | 44.24 lbs/day |
| • | SOx | 0.01 tpy | 0.26 lbs/day |
| • | PM10 | 19.49 tpy | 125.26 lbs/day |
| • | PM2.5 | 7.19 tpy | 57.96 lbs/day |

Onsite mobile emissions from the use of off-road equipment during operations account for the following percentage's of total operational emissions:

| • | NOx | 25.3% of annual | 0.19% of daily |
|---|-------|-----------------|-----------------|
| • | | | • |
| • | CO | 42.9% of annual | 0.29% of daily |
| • | VOC | 0.66% of annual | 0.023% of daily |
| • | SOx | negligible | |
| • | PM10 | 0.15% of annual | 0.008% of daily |
| • | PM2.5 | 0.41% of annual | 0.017% of daily |

The above data does not support further mitigation of onsite operations off-road equipment emissions.

CONDITION OF CERTIFICATION AQ-SC4

The Applicant is requesting that this condition be limited to visible dust plumes in excess of the MDAQMD opacity standards (and evaluation timeframes) as delineated in Rule 401. Use of the Rule 401 evaluation criteria and timeframes will provide a clear and established set of criteria for determining when a visible plume could be potentially problematic offsite.

AQ-SC4 Dust Plume Response Requirement: The AQCMM or an AQCMM Delegate shall monitor all construction activities for visible dust plumes. Observations of visible dust plumes that have the potential to be transported (A) off the project site and within 400 feet upwind of any regularly occupied structures not owned by the project owner or (B) 200 feet beyond the centerline of the construction of linear facilities, that exceed the opacity limits and time frames in Rule 401, indicate that existing mitigation measures are not resulting in effective mitigation. The AQCMP shall include a section detailing how the additional mitigation measures will be accomplished within the time limits specified. The AQCMM or Delegate shall implement the following procedures for additional mitigation measures in the event that such visible dust plumes are observed:

CONDITION OF CERTIFICATION AQ-SC6

Genesis suggests the deletion of this condition as a redundant requirement already addressed General Comment #4

AQ-SC6 The project owner, when obtaining dedicated on road or offroad vehicles for mirror washing activities and other facility maintenance activities, shall only obtain new model year vehicles that meet California on-road vehicle emission standards or appropriate U.S.EPA/California offroad engine emission standards for the model year when obtained.

<u>Verification:</u> At least 60 days prior to the start commercial operation, the project owner shall submit to the CPM a copy of the plan that identifies the size and type of the on-site vehicle and equipment fleet and the vehicle and equipment purchase orders and contracts and/or purchase schedule. The plan shall be updated every other year and submitted in the Annual Compliance Report (**COMPLIANCE-7**).

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF Alice E. Karl, Ph.D.

I, Alice E. Karl, declare as follows:

- 1. I am presently self-employed as a biological consultant.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Biological Resources for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Davis, CA on May 19, 2010.

Alice E. Karl. Ph.D.

Alio Etal

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF EMILY FESTGER

- I, Emily Festger, declare as follows:
 - 1. I am presently employed by Tetra Tech EC, Inc., as a Biologist.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to biology for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Lakewood, CO on May 14, 2010.

Emily Festger

mily sten

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OFKenneth Stein

- I, Kenneth Stein, declare as follows:
 - 1. I am presently employed by NextEra Energy Resourcess, LLC, as an Environmental and Permitting Manager.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Biological Resources for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed in Ft. Lauderdale, FL on May 18, 2010.

Kenneth Stein

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF Miles Kenney, Ph.D.

- I, Miles Kenney, declare as follows:
 - 1. I am presently employed by WorleyParsons Group, as a Senior Project Geologist.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Biological Resources (the geomorphology of the aeolian sand system) for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Encinitas, CA on May 18, 2010.

Miles D. Kenney

GENESIS SOLAR ENERGY PROJECT BIOLOGICAL RESOURCES OPENING TESTIMONY

I. Name:

Alice E. Karl, Ph.D., Emily Festger, Kenneth Stein and

Miles Kenney, Ph.D.

II. Purpose:

Our testimony addresses the subject of Biological Resources associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

Alice Karl: I am presently self-employed and have been for the past 32 years. I have M.S. and Ph.D. degrees in ecology and I have over 32 years of experience in the field of desert ecology. I prepared or assisted in the preparation of the Biological Resources section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

<u>Emily Festger</u>: I am presently employed at Tetra Tech EC, Inc., and have been for the past 3 years and am presently a biologist with that organization. I have a Bachelor's Degree in Biology and I have over 3 years of experience in the field of biology. I prepared or assisted in the preparation of the Biological Resources section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Kenneth Stein: I am presently employed at NextEra Energy Resources, and have been for the past 6 years and am presently an Environmental and Permitting Manager with that organization. I have a B.S Degree in Environmental Science and a Law Degree with a focus in Environmental Law and I have over 20 years of experience in the field of Environmental Permitting. I prepared or assisted in the preparation of the Biological Resources section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Miles Kenney: I am presently employed at WorleyParsons Group, and have been for the past 7 months and am presently a senior project geologist with that organization. I have a Ph.D. Degree in Geology and I have over 20 years of experience in the field of geology with an emphasis on Quaternary Geology of desert landscapes. I prepared or assisted in the preparation of the Geomorphic evaluation of the Aeolian sand system

report being supplemental to the Biology and Soil and Water sections of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

| Exhibit 1 | Application for Certification Vol I & II , dated August 2009, and docketed on August 31, 2009, Section 5.3 and Appendix C. |
|------------|---|
| Exhibit 3 | Data Adequacy Supplement, dated October 2009, and docketed on October 12, 2009. |
| | |
| Exhibit 11 | Data Requests Set 1A Responses (1 through 227), dated December 14, 2009, and docketed on December 15, 2009, Responses (53-121). |
| Exhibit 16 | Notification of Lake of Streambed Alteration, dated December 30, 2009, and docketed on December 31, 2009. |
| Exhibit 17 | Application for Incidental Take of Threatened and Endangered Species, dated December 31, 2009, and docketed on January 4, 2010. |
| Exhibit 19 | Draft Desert Tortoise Translocation Plan, dated January 4, 2010, and docketed on January 6, 2010. |
| Exhibit 20 | Supplement to the Genesis Surface Drainage Data Requests, dated January 4, 2010, and docketed on January 11, 2010. |
| Exhibit 23 | Revised Notification of Lake or Streambed Alteration with Revised Survey for Jurisdictional Waters and Wetlands at the Genesis Solar Energy Project, dated January 11, 2010 and January 2010, respectively, and docketed on January 14, 2010. |

| Exhibit 24 | Draft Common Raven Monitoring, Management, & Control Plan, dated January 2010, and docketed on January 15, 2010. |
|------------|---|
| Exhibit 26 | Interim Preliminary Aeolian Sand Source - Migration and Deposition Letter Report, dated January 11, 2010, and docketed on January 19, 2010. |
| Exhibit 30 | Applicant Addenda to DR Requests 64, 65 & 120 of Set 1A, dated January 27, 2010 and docketed on January 26, 2010. |
| Exhibit 31 | Draft Weed Management Plan, dated January 2010, and docketed on February 1, 2010. |
| Exhibit 34 | Applicant's Draft Revegetation Plan, dated February 2010, and docketed on February 4, 2010. |
| Exhibit 35 | Aeolian Transport Evaluation & Ancient Shoreline Delineation Report, dated February 5, 2010, and docketed on February 10, 2010. |
| Exhibit 36 | Report of Conversation Regarding Genesis Surface Drainage DR (Between Mike Daly, Bob Anders & Dipti Sheth), dated February 9, 2010, and docketed on February 11, 2010. |
| Exhibit 39 | Applicant's Draft Decommissioning & Closure Plan, dated February 22, 2010, and docketed on February 24, 2010. |
| Exhibit 40 | Report of Conversation Regarding Anticipated Direct and Indirect Impacts to Vegetation Communities (Between Mike Monasmith & Tricia Bernhardt), dated February 22, 2010, and docketed on February 24, 2010. |
| Exhibit 42 | Genesis Solar LLC's Alternative Proposal for Desert Tortoise Mitigation: A Habitat-Based Approach, dated February 2010, and docketed on February 26, 2010. |
| Exhibit 44 | Genesis Solar LLC's Revisions to the Jurisdictional Waters, dated March 13, 2010, and docketed on March 17, 2010. |
| Exhibit 45 | Consultant's 2009 Winter Avian Point Count & Burrowing Owl Survey Results, dated April 2010, and docketed on April 7, 2010. |
| Exhibit 46 | Genesis Solar LLC's Data Responses to CURE's Data Request Set 1, (1 through 66), dated April 12, 2010, and docketed on April 12, 2010, Responses 1-66. |

Exhibit 47

Letter from the US Fish & Wildlife Service regarding the Genesis Solar Energy Project proceeding (Comments on the Draft Desert Tortoise Relocation/Translocation Plan), dated April 15, 2010, and docketed on April 20, 2010.

Genesis Solar LLC's Proposed Biology Conditions of Certification, dated ______, and docketed on April 29, 2010.

V. Opinion and Conclusions

Genesis Solar LLC, (Genesis) has reviewed the analysis and all conditions of certifications embodied in the SA/DEIS, participated in workshops. Since Genesis is filing this testimony prior to Staff publishing its Revised Staff Assessment, we have included all areas where our opinion differs from the analysis or recommended Conditions of Certification contained in the SA/DEIS. However, since Genesis and Staff made substantial progress at the Staff Assessment Workshops, in an effort to clarify for the Committee the relatively few areas that may need Committee resolution, we have divided this testimony into the following categories.

- Category I Modifications to Conditions of Certification that were proposed by Genesis in its comments on the SA/DEIS and that were accepted by Staff at Staff Assessment Workshops
- Category II Modifications that Genesis and Staff agreed after discussion at Staff Assessment Workshops and would be included in the Revised Staff Assessment
- Category III Modifications to Conditions of Certification that Genesis has proposed that Staff has either rejected or needed additional time or information to consider and any disagreement with Staff's analysis and ultimate conclusions

After the Revised Staff Assessment is published Genesis remains confident that if any Biological Resources disputes exist, they will be confined in the third category only.

CATEGORY I GENESIS PROPOSED MODIFICATIONS AGREED BY STAFF

CONDITION OF CERTIFICATION BIO-1

Footnote 1 to the Condition of Certification BIO-1 should be modified as follows:

USFWSwww.fws.gov/ventura/speciesinfo/protocols guidelines/doc s/dt> designates biologists who are approved to handle tortoises as "Authorized Biologists." Such biologists have demonstrated to the USFWS that they possess sufficient desert tortoise knowledge and experience to handle and move tortoises appropriately, and have received USFWS approval. Authorized Biologists are responsible for the implementation of all desert tortoise measures for which a project is approved and are permitted to then approve specific monitors-Biological Monitors to handle tortoises, at their discretion. The California Department of Fish and Game (CDFG) must also approve such biologists, potentially including individual approvals for monitors Biological Monitors approved by the Authorized Biologist. Designated Biologists are the equivalent of Authorized Biologists. Only Designated Biologists and certain Biological Monitors who have been approved by the Designated Biologist would be allowed to handle desert tortoises.

The Verification should be modified as follows

<u>Verification:</u> No fewer than 30 days prior to *the start of any site mobilization or* construction-related ground disturbance, the Designated Biologists shall complete a *Project owner shall submit the names of the Designated Biologist(s), along with completed* USFWS Desert Tortoise Authorized Biologist Request Forms (www.fws.gov/ventura/speciesinfo/protocols_guidelines) to the USFWS, BLM's Authorized Officer, and the CPM for review and final approval.

The Project owner shall submit the CPM and Authorized Officer-approved Designated Biologist *no fewer than 30 days prior to the start of any site mobilization or construction-related ground disturbance* within-7 days of receiving the Energy Commission Decision. No construction-related ground disturbance, grading, boring, or trenching shall commence until an approved Designated Biologist is available to be on site.

If a Designated Biologist needs to be replaced, the specified information of the proposed replacement must be submitted to BLM's Authorized Officer and the CPM at least 10 working days prior to the termination or release of the preceding Designated Biologist. In an emergency, the Project owner shall immediately notify the BLM's Authorized Officer and the CPM to discuss the qualifications and approval of a short-term replacement while a permanent Designated Biologist is proposed to BLM's Authorized Officer and the CPM and for consideration.

CONDITION OF CERTIFICATION BIO-4

The Condition of Certification should be modified as follows:

BIO-4 The Biological Monitors shall assist the Designated Biologist in conducting surveys and in monitoring of site mobilization activities, construction-related ground disturbance, *fencing*, grading, boring or trenching; and *reporting*. The Designated Biologist shall remain the contact for the Project owner, BLM's Authorized Officer and the CPM.

CONDITION OF CERTIFICAITON BIO-6

The first paragraph of the Verification to this Condition of Certification should be modified as follows:

<u>Verification:</u> At least 30 days prior to start of construction-related ground disturbance, Within 7 days of docketing of the Energy Commission's Final Decision, or publication of the Record of Decision/ROW Issuance, whichever comes first, the Project owner shall provide to BLM's Authorized Officer and the CPM a copy of the final WEAP and all supporting written materials and electronic media prepared or reviewed by the Designated Biologist and a resume of the person(s) administering the program.

CONDITION OF CERTIFICATION BIO-7

The first paragraph to this Condition of Certification should be modified as follows:

BIO-7 The Project owner shall develop a Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), and shall submit two copies of the proposed BRMIMP to the BLM-Authorized Officer and the CPM for review and approval. The Project owner shall implement the measures identified in the approved BRMIMP. The BRMIMP shall incorporate avoidance and minimization measures described in final versions of the Desert Tortoise Relocation Translocation Plan, the Raven Management Plan, the Closure, Conceptual Restoration Plan, the Burrowing Owl Mitigation and Monitoring Plan, and the Weed Management Plan, and all other individual biological mitigation and/or monitoring plans associated with the Project.

<u>Verification:</u> The Project owner shall submit the final draft BRMIMP to BLM's Authorized Officer and the CPM at least 30 days prior to start of any preconstruction site mobilization and construction-related ground disturbance, grading, boring, and trenching. The BRMIMP shall contain all of the required measures

included in all biological Conditions of Certification. No construction-related ground disturbance, grading, boring or trenching may occur prior to approval of the final BRMIMP by BLM's Authorized Officer and the CPM.

If any permits have not yet been received when the BRMIMP is submitted, these permits shall be submitted to BLM's Authorized Officer and the CPM within 5 days of their receipt and the BRMIMP shall be revised or supplemented to reflect the permit condition within at least 10 days of their receipt by the Project owner. Ten days following the Project owner's receipt of any additional permits. The revised BRMIMP shall be resubmitted to BLM's Authorized Officer and the CPM. Under no circumstances will ground disturbance proceed without implementation of all permit conditions.

To verify that the extent of construction disturbance does not exceed that described in this analysis, the Project owner shall submit aerial photographs, at an approved scale, taken before and after construction to the CPM and BLM's Authorized Officer. The first set of aerial photographs shall reflect site conditions <u>prior</u> to any preconstruction site mobilization and construction-related ground disturbance, grading, boring, and trenching, and shall be submitted <u>at least 60 days</u> prior to initiation of such activities. The second set of aerial photographs shall be taken <u>subsequent</u> to completion of construction, and shall be submitted to the CPM and BLM's Authorized Officer no later than 90 days after completion of construction. The Project owner shall also provide a final accounting of the acreages of vegetation communities/cover types present before and after construction.

CONDITION OF CERTIFICATION BIO-8

The following modifications to this Condition were made by Genesis and agreed by Staff.

4. Monitor During Construction. In areas that have not been fenced with desert tortoise exclusion fencing and cleared, including during fence construction, the Designated Biologist shall be present at the construction site during all Project activities that have potential to disturb soil, vegetation, and wildlife. The Designated Biologist or Biological Monitor shall walk immediately ahead of equipment during brushing and grading activities in unfenced habitat.

Genesis and Staff agreed to the following modifications to Item 10 of this s Condition of Certification to reflect that the Desert Tortoise Translocation Plan addresses moving desert tortoises and associated temperature concerns in detail.

10. Avoid Vehicle Impacts to Desert Tortoise. Parking and storage shall occur within the area enclosed by desert tortoise exclusion fencing to the extent feasible. No vehicles or construction equipment parked outside the fenced area shall be moved prior to an inspection of the ground beneath the vehicle for the presence of desert tortoise. If a desert tortoise is observed, it shall be left to move on its own. If it does not move within 15 minutes, a A Designated Biologist, or approved Biological Monitor, or Biological Monitor under the Designated Biologist's direct supervision may remove and relocate the animal to a safe location if temperatures are within the range described in the USFWS' 2009 Desert Tortoise Field Manual (http://www.fws.gov/ventura/speciesinfo/protocols-guidelines -as described in the Applicant's Desert Tortoise Translocation Plan.

Genesis and Staff agreed to modify Item 11 of this Condition of Certification as follows:

- 11. <u>Avoid Wildlife Pitfalls</u>: To avoid trapping desert tortoise and other wildlife in trenches, pipes or culverts, the following measures shall be implemented:
 - a. Backfill Trenches. At the end of each work day, the Designated Biologist shall ensure that all potential wildlife pitfalls (trenches, bores, and other excavations) outside the area fenced with desert tortoise exclusion fencing have been backfilled. If backfilling is not feasible, all trenches, bores, and other excavations shall be sloped at a 3:1 ratio at the ends to provide wildlife escape ramps, or covered completely to prevent wildlife access, or fully enclosed with desert tortoise-exclusion fencing. All trenches. bores, and other excavations outside the areas permanently fenced with desert tortoise exclusion fencing shall be inspected periodically throughout the day, and at the end of each workday, and at the beginning of each day by the Designated Biologist or a Biological Monitor. Should a tortoise or other wildlife become trapped, the Designated Biologist or Biological Monitor shall remove and relocate the

- individual as described in the Desert Tortoise Translocation Plan. Any wildlife encountered during the course of construction shall be allowed to leave the construction area unharmed.
- b. Avoid Entrapment of Desert Tortoise. Any construction pipe, culvert, or similar structure with a diameter greater than 3 inches, stored less than 8 inches aboveground and within desert tortoise habitat (i.e., outside the permanently fenced area) for one or more nights, shall be inspected for tortoises before the material is moved, buried or capped. As an alternative, all such structures may be capped before being stored outside the fenced area, or placed on elevated pipe racks. These materials would not need to be inspected or capped if they are stored within the permanently fenced area after the clearance surveys have been completed.

Genesis and Staff agreed to the following modifications to Item 13 of this Condition of Certification.

13. Dispose of Road-killed Animals. Read-During construction, road killed animals or other carcasses detected by personnel on roads near-associated with the Project will be reported immediately to the a Biological Monitor or Designated Biologist, who will remove the roadkill promptly. During operations, the Project Environmental Compliance Monitor will be notified of any roadkills and promptly remove and dispose of any roadkills. For special-status species road-kill, the Biological Monitor shall contact CDFG and USFWS within 1 working day of receipt of the carcass for guidance on disposal or storage of the carcass. The Biological Monitor shall report the special-status species record as described in BIO-11 below.

CONDITION OF CERTIFICATION BIO-9

Genesis and Staff agreed to the following modifications to Item 1 of this Condition of Certification.

1. <u>Desert Tortoise Exclusion Fence Installation</u>. *Per the Applicant's Desert Tortoise Translocation Plan, in order to To-*avoid impacts to desert tortoises, permanent desert tortoise exclusion fencing shall be installed along the permanent perimeter security fence; along the utility corridors, temporary fencing or monitoring will be used to protect tortoises. and temporarily installed along the

utility corridors. The proposed alignments for the permanent perimeter fence and utility rights-of-way fencing shall be flagged and surveyed within 24 hours prior to the initiation of fence construction. Clearance surveys of the perimeter fence and utility rights-of-way alignments shall be conducted by the Designated Biologist(s) using techniques outlined in the USFWS' 2009 Desert Tortoise Field Manual and may be conducted in any season with USFWS and CDFG approval. Biological Monitors may assist the Designated Biologist under his or her supervision. These fence clearance surveys shall provide 100-percent coverage of all areas to be disturbed and an additional transect along both sides of the fence line. This fence line transect shall cover an area approximately 90 feet wide centered on the fence alignment. Transects shall be no greater than 15 feet apart. All desert tortoise burrows, and burrows constructed by other species that might be used by desert tortoises, shall be examined to assess occupancy of each burrow by desert tortoises and handled in accordance with the USFWS' 2009 Desert Tortoise Field Manual. Any desert tortoise located during fence clearance surveys shall be handled by the Designated Biologist(s) in accordance with the Applicant's Translocation Plan, USFWS' 2009 Desert Tortoise Field Manual.

- a. <u>Timing, Supervision of Fence Installation</u>. The exclusion fencing shall be installed prior to the onset of site clearing and grubbing. The fence installation shall be supervised by the Designated Biologist and monitored by the Biological Monitors to ensure the safety of any tortoise present.
- b. Fence Material and Installation. The permanent tortoise exclusionary fencing shall be constructed in accordance with the USFWS' 2009 Desert Tortoise Field Manual (Chapter 8 Desert Tortoise Exclusion Fence).
- c. <u>Security Gates</u>. Security gates shall be designed with minimal ground clearance to deter ingress by tortoises. The gates may be electronically activated to open and close immediately after the vehicle(s) have entered or exited to prevent the gates from being kept open for long periods of time. <u>Cattle grating designed</u> to safely exclude desert tortoise shall be installed at the gated entries to discourage tortoises from gaining entry.

Genesis and Staff agreed to the following modifications to Item 3 of this Condition of Certification.

3. Monitoring Following Clearing. Following the desert tortoise clearance and removal from the power plant site and utility corridors, workers and heavy equipment shall be allowed to enter the Project site to perform clearing, grubbing, leveling, and trenching. A Designated Biologist or *Biological Monitor* shall *be on site during* monitor clearing and grading activities to find and move tortoises missed during the initial tortoise clearance survey. Should a tortoise be discovered, it shall be relocated or translocated as described in the Desert Tortoise Relocation/Translocation Plan.

CONDITION OF CERTIFICATION BIO-10

Genesis proposed and Staff agreed to the following modification to the Verification to this Condition.

<u>Verification:</u> Within 30 days prior to construction-related ground disturbance, 7 days of docketing of the Energy Commission Final Decision or publication of BLM's Record of Decision/ROW Issuance, whichever comes first, the Project owner shall provide BLM's Authorized Officer and the CPM with the final version of a Plan that has been reviewed and approved by BLM's Authorized Officer and the CPM in consultation with USFWS and CDFG. All modifications to the approved Plan shall be made only after approval by BLM's Authorized Officer and the CPM, in consultation with USFWS and CDFG.

CONDITION OF CERTIFICATION BIO-11

Genesis and Staff agreed to the following modification to Item 2 of this Condition of Certification.

Monitoring During Grubbing and Grading. Remain onsite daily while vegetation salvage, grubbing, grading and other ground-disturbance construction activities are taking place to avoid or minimize take of listed species, and verify personally or use Biological Monitors to check for compliance with all impact avoidance and minimization measures, and to including checking all exclusion zones to ensure that signs, stakes, and fencing are intact and that human activities are restricted in these protective zones.

Genesis and Staff have agreed to the following modification to Item 4a of the Condition of Certification.

a. Injured Desert Tortoise. If a desert tortoise is injured as a result of Project-related activities during construction, the Designated Biologist or approved Biological Monitor shall immediately take it to a CDFG-approved wildlife rehabilitation and/or veterinarian clinic. Any veterinarian bills for such injured animals shall be paid by the Project owner. Following phone notification as required above, the CPM, BLM's Authorized Officer, CDFG, and USFWS shall determine the final disposition of the injured animal, if it recovers. Written notification shall include, at a minimum, the date, time, location, circumstances of the incident, and the name of the facility where the animal was taken.

CONDITION OF CERTIFICATION BIO-12

Genesis and Staff agreed on the following modification to Item 1d of this Condition of Certification.

d. be connected to lands where desert tortoises can be reasonably expected to occur currently occupied by desert tortoise-based on habitat or historic occurrences, ideally with populations that are stable, recovering, or likely to recover;

Genesis and Staff agreed on the following modification to Item 3 of this Condition of Certification.

3. Mitigation Security: The Project owner shall provide financial assurances to the CPM and CDFG, with copies of the document(s) to BLM and the USFWS, to guarantee that an adequate level of funding is available to implement the mitigation measures described in this condition. These funds shall be used solely for implementation of the measures associated with the Project. Financial assurance can be provided to the CPM and BLM's Authorized Officer in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security") prior to initiating construction-related ground-disturbing Project activities. Prior to submittal to the CPM, the Security shall be approved by the CPM and BLM's Authorized Officer, in consultation with CDFG and the USFWS, to ensure sufficient funding. As of the publication of the SA/DEIS, this amount is \$4,281,840 (\$2,578,680 if the Reduced Acreage Alternative were adopted). This Security amount may be revised based on land costs or the estimated costs of enhancement and endowment (see subsection C.2.4.2, Desert Tortoise, for a

discussion of the assumptions used in calculating the Security, which are based on an estimate of \$2,280 per acre to fund acquisition, enhancement, and long-term management). The final amount due will be determined by the PAR analysis conducted pursuant to this condition.

Genesis and Staff agreed on the following modification to the Verification to this Condition of Certification.

<u>Verification:</u> At least No later than 30 days prior to the start of construction-related ground disturbance beginning Project ground-disturbing activities, the Project owner shall provide written verification of Security in accordance with this condition of certification. The Project owner, or an approved third party, shall complete and provide written verification of the proposed compensation lands acquisition, within 18 months of the start of construction-related Project ground disturbance—disturbing activities.

No less than 90 days prior to acquisition of the property, the Project owner shall submit for review and approval a formal acquisition proposal to BLM's Authorized Officer, the CPM, CDFG, and USFWS describing the parcels intended for purchase. At the same time the project owner shall submit a PAR or PAR-like analysis for the parcels for review and approval by the CPM, BLM's Authorized Officer, CDFG and USFWS.

The Project owner, or an approved third party, shall provide BLM's Authorized Officer, the CPM, CDFG and USFWS with a management plan for the compensation lands and associated funds within 180 days of the land or easement purchase, as determined by the date on the title. BLM's Authorized Officer and the CPM shall review and approve the management plan, in consultation with CDFG and the USFWS.

Within 90 days after completion of Project construction, the Project owner shall provide to the CPM and CDFG an analysis with the final accounting of the amount of habitat disturbed during Project construction.

The Project owner shall provide written verification to BLM's Authorized Officer, the CPM, USFWS and CDFG that the compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient no later than 18 months from *the start of construction-related ground*

disturbance activities.-docketing of the Final Energy Commission Decision for the Genesis Solar Energy Project.

CONDITION OF CERTIFICATION BIO-13

Genesis and Staff agreed to the following modification to the Verification of this Condition of Certification.

<u>Verification:</u> No less than 40-30 days prior to start of any construction Project-related ground disturbance activities, the Project owner shall provide BLM's Authorized Officer, the CPM, USFWS, and CDFG with the final version of a Raven Plan. All modifications to the approved Raven Plan shall be made only with approval of BLM's Authorized Officer and CPM in consultation with USFWS and CDFG.

CONDITION OF CERTIFICATION BIO-14

Genesis and Staff agreed to the following modification to the Verification to the Condition of Certification.

<u>Verification:</u> No less than 40-30 days prior to start of any construction Project-related ground disturbance activities, the Project owner shall provide BLM's Authorized Officer and the CPM with the final version of a Weed Management Plan that has been reviewed and approved by BLM, and Energy Commission staff, USFWS, and CDFG. Modifications to the approved Weed Control Plan shall be made only after consultation with the Energy Commission staff, BLM, USFWS, and CDFG.

CONDITION OF CERTIFICATION BIO-15

Genesis and Staff agreed to the following modification to Item 4 and the Verification to this Condition of Certification.

4. The Designated Biologist *or Biological Monitor* shall monitor the nest until he or she determines that nestlings have fledged and dispersed; activities that might, in the opinion of the Designated Biologist, disturb nesting activities, shall be prohibited within the buffer zone until such a determination is made.

<u>Verification:</u> At least 10 days prior to the start of any *construction* Project-related ground disturbance activities, the Project owner shall provide the CPM a letter-report describing the findings of the pre-construction nest surveys, including the time, date, and duration of the survey; identity and qualifications of the surveyor (s); and a list of species observed. If active nests are detected during

the survey, the report shall include a map or aerial photo identifying the location of the nest and shall depict the boundaries of the nodisturbance buffer zone around the nest(s) that would be avoided during project construction.

CONDITION OF CERTIFICATION BIO-16

Genesis and Staff have agreed on the following modifications to this Condition of Certification.

BIO-16

The project owner shall prepare and implement an Avian Protection Plan to monitor death and injury of birds from collisions with facility features such as reflective mirror-like surfaces and from heat, and bright light from concentrating sunlight, and to implement adaptive management measures to minimize such impacts. The Avian Protection Plan shall be approved by BLM's Authorized Officer and the CPM in consultation with CDFG and USFWS, and shall be incorporated into the project's BRMIMP and implemented. The Avian Protection Plan shall include detailed specifications on data and carcass collection protocol and a rationale justifying the proposed schedule of carcass searches. The study shall also include seasonal trials to assess bias from carcass removal by scavengers as well as searcher bias.

<u>Verification:</u> No less than 40 *30* days prior to the start of construction-related ground disturbance activities, following docketing of the Energy Commission Final Decision or publication of BLM's Record of Decision/ROW Issuance, whichever comes first, the project owner shall submit to the CPM, BLM's Authorized Officer, USFWS and CDFG a final Avian Protection Plan. Modifications to the Avian Protection Plan shall be made only after approval from BLM's Authorized Officer and the CPM.

For one year following the beginning of power plant operation the Designated Biologist shall submit quarterly reports to BLM's Authorized Officer, CPM, CDFG, and USFWS describing the dates, durations, and results of monitoring. The quarterly reports shall provide a detailed description of any Project-related bird or wildlife deaths or injuries detected during the monitoring study or at any other time. Following the completion of the fourth quarter of monitoring the Designated Biologist shall prepare an Annual Report that summarizes the year's data, analyzes any Project-related bird fatalities or injuries detected, and provides recommendations for future monitoring and any adaptive management actions needed.

No later than January 31st of every year the Annual Report shall be provided to the CPM, BLM's Authorized Officer, CDFG, and USFWS. Quarterly reporting shall continue until BLM's Authorized Officer and the CPM, in consultation with CDFG and USFWS determine whether more years of monitoring are needed, and whether mitigation and adaptive management measures are necessary. After two years of data collection the project owner or contractor shall prepare a report that describes the study design and monitoring results of the Avian Protection Plan to be submitted to a peer reviewed scientific journal. Proof of submittal shall be provided to BLM's Authorized Officer and the CPM no later than the third year after onset of Project operation.

CONDITION OF CERTIFICATION BIO-17

Genesis and Staff have agreed to the following modifications to this Condition of Certification.

BIO-17

To avoid direct impacts to American badgers and desert kit fox, pre-construction surveys shall be conducted for these species concurrent with the desert tortoise surveys. Surveys shall be conducted as described below:

Biological Monitors shall perform pre-construction surveys for badger and kit fox dens in the Project area, including areas within 90 feet of the perimeter fence, utility corridors, and access roads. If dens are detected each den shall be classified as inactive, potentially active, or definitely active.

Inactive dens that would be directly impacted by construction activities shall be excavated by hand and backfilled to prevent reuse by badgers or kit fox. Potentially and definitely active dens that would be directly impacted by construction activities shall be monitored by the Biological Monitor for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) and/or infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den shall be excavated and backfilled by hand. If tracks are observed, and especially if high or low ambient temperatures could potentially result in harm to kit fox or badger from burrow exclusion, various passive hazing methods may be used to

discourage the den shall be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) occupants for the next three to five nights to discourage the badger or kit fox from continued use. After verification that the den is unoccupied it shall then be excavated and backfilled by hand to ensure that no badgers or kit fox are trapped in the den. BLM approval may be required prior to release of badgers on public lands.

CONDITION OF CERTIFICATION BIO-18

Genesis and Staff have agreed to the following modifications to Item 4a of this Condition of Certification

a. Criteria for Burrowing Owl Mitigation Lands. The terms and conditions of this acquisition or easement shall be as described in BIO-12 [Desert Tortoise Compensatory Mitigation], with the additional criteria to include: 1) the 39 acres of mitigation land per pair or single bird must provide suitable habitat for burrowing owls and 2) may not be isolated from other suitable burrowing owl and 2) the acquisition lands must either currently support burrowing owls or be no farther than 5 miles from an active burrowing owl nesting territory. The 39 acres of burrowing owl mitigation lands may be included with the 1,878 acres of desert tortoise mitigation lands ONLY if the burrowing owl criteria are is met. If the 39 acres of burrowing owl mitigation land is separate from the 1,878 acres required for desert tortoise compensation lands, the Project owner shall fulfill the requirements described below in this condition.

Genesis and Staff have agreed to the following modifications to the Verification to this Condition of Certification

<u>Verification:</u> If pre-construction surveys detect burrowing owls within 500 feet of proposed construction activities, the Designated Biologist shall provide to the CPM and BLM's Authorized Officer documentation indicating that non-disturbance buffer fencing has been installed at least 10 days prior to the start of any *construction* Project-related site *ground* disturbance activities. The Project owner shall report monthly to BLM's Authorized Officer, the CPM, CDFG and USFWS for the duration of construction on the implementation of burrowing owl avoidance and minimization measures. Within 30 days after completion of construction the Project owner shall provide to the CDFG and CPM a written

construction termination report identifying how mitigation measures described in the plan have been completed.

If pre-construction surveys detect burrowing owls within the Project Disturbance Area and relocation of the owls is required, the Project owner shall do the following:

- a. Within 30 days of cornpletion of the burrowing owl preconstruction surveys, submit to BLM's Authorized Officer, the CPM, CDFG and USFWS a Burrowing Owl Mitigation Plan.
- b. No less than 90 days prior to acquisition of the burrowing owl compensation lands, the Project owner, or an approved third party, shall submit a formal acquisition proposal to the CPM, BLM's Authorized Officer, CDFG, and USFWS describing the 39 acre parcel intended for purchase. At the same time the project owner shall submit a PAR or PAR-like analysis for the parcels for review and approval by the CPM, BLM's Authorized Officer, CDFG and USFWS.
- c. Within 90 days of the land or easement purchase, as determined by the date on the title, the Project owner shall provide the CPM and BLM's Authorized Officer with a management plan for review and approval, in consultation with CDFG and USFWS, for the compensation lands and associated funds.
- d. No later than 30 days prior to *the start of construction-related* beginning Project ground-disturbing activities, the project owner shall provide written verification of Security in accordance with this condition of certification.
- e. No later than 18 months from after the start of construction-related ground disturbance activities, Energy Commission Final Decision or publication of BLM's Record of Decision/ROW Issuance, whichever comes first, the Project owner shall provide written verification to the BLM's Authorized Officer, the CPM and CDFG that the 39 acres of compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient.
- f. On January 31st of each year following construction for a period of five years, the Designated Biologist shall provide a report to the CPM, BLM's Authorized Officer, USFWS and CDFG that describes the results of monitoring and management of the burrowing owl relocation area.

CONDITION OF CERTIFICATION BIO-19

Genesis and Staff agree to the following modifications to portions of this Condition of Certification and the Verification.

- BIO-19 The Project owner will provide protection measures in the BRMIMP that will: shall prepare a Special-Status Plant Mitigation Plan ("Plan") that meets the approval of BLM's Authorized Officer and the CPM. The objective of the Plan is to:
 - Protect preserved avoided plants near the Project Disturbance Area from direct and indirect effects of construction and operation,
 - Ensure that any special-status plants that may have been missed during the 2009 surveys are detected, and
 - 3. Provide detailed specifications and performance standards to compensate for unavoidable impacts to special-status plants.
- 2. Avoidance and Minimization Measures: The BRMIMP Plan shall include avoidance and minimization measures for Harwood's milk-vetch, desert unicorn plant, ribbed cryptantha, and any other special-status plant species detected during the 2010 surveys. The Project Owner shall implement avoidance and minimization measures contained in the Data Request Responses Set 1A (Pages BR-55-56) for all special-status plant occurrences to be avoided preserved. These include:
 - Worker training;
 - Designating special-status plants to be avoided as Environmentally Sensitive Areas;
 - Designate spoil areas and storage areas at least 100 feet from any avoided preserved occurrence;
 - Minimize ground-disturbing activities;
 - Use existing roads wherever possible;
 - Enforce vehicle speed limits;
 - Construction monitoring and reporting;
 - Weed management and control of chemical drift;
 - Dust control;

- Spill containment kits;
- Locating wash areas a minimum of 100 feet away from avoided preserved occurrences.

Additionally, the Project Owner shall revise the layout of the discharge points of the engineered channel to ensure that any special-status plants occurring downstream are adequately protected *or impacts are mitigated as necessary.*

<u>Verification:</u> Within 30 days prior to the start of construction-related ground disturbance, 10 days of publication of the Energy Commission License Decision or the Record of Decision/ROW Issuance, whichever comes first, the Project owner shall submit to BLM's Authorized Officer, the CPM and CDFG, an agency-approved BRMIMP final Special status Plant Impact Avoidance and Minimization Plan, which includes the plant protection measures.

A botanical survey report and map detailing the results of the spring and summer/fall 2010 surveys shall be submitted to the CPM and BLM's Authorized Officer no later than 30 days prior to construction-related ground disturbance December 31, 2010. The map shall clearly depict the occurrences and the Project features and indicate which occurrences shall be avoided preserved, and include a description of each occurrence (population size, associated species, any distinctive characteristics, reproduction, etc).

A qualified botanist shall delineate the boundaries of these specialstatus plant occurrences *that will be avoided* at least 30 days prior to the initiation of *construction-related* ground disturbing activities.

Within 30 days after completion of Project construction, the Project owner shall provide to BLM's Authorized Officer and the CPM for review and approval, a written report identifying which items of the Special-Status Plant Species Avoidance, and Mitigation Plan BRMIMP have been completed, a summary of all modifications to mitigation measures made during the Project's construction phase, and which items are still outstanding.

No later than 30 days prior to beginning *construction-related*Project ground-disturbing activities, the Project owner shall provide written verification of Security in accordance with this condition of certification for compensatory is provided, the Project owner, or an approved third party, shall complete and provide written verification of the proposed compensation lands acquisition within 18 months

of the start of *construction-related* Project ground-disturbing activities.

CONDITION OF CERTIFICATION BIO-22

Genesis and Staff agreed to the following modifications to this Condition of Certification.

BIO-22

The Project owner shall implement the following measures to avoid, minimize and mitigate for direct and indirect impacts to waters of the state and to satisfy requirements of California Fish and Game Code sections 1600 and 1607.

- 1. Acquire Off-Site State Waters: The project owner. shall acquire, in fee or in easement, a parcel or parcels of land that includes at least 132 acres of state jurisdictional waters. The parcel or parcels comprising the 132 acres of ephemeral washes shall include at least 48 acres of microphyll woodland. If the Reduced Acreage Alternative were constructed the mitigation requirements for impacts to state waters would be a minimum of 109 acres that included at least 48 acres of microphyll woodland. The terms and conditions of this acquisition or easement shall be as described in Condition of Certification BIO-12. Mitigation for impacts to state waters shall occur within the Chuckwalla-Palen or surrounding watersheds, as close to the Project site as possible.
- 2. Security for Implementation of Mitigation: The project owner shall provide financial assurances to the CPM and CDFG to guarantee that an adequate level of funding is available to implement the acquisitions and enhancement of state waters as described in this condition. These funds shall be used solely for implementation of the measures associated with the project. Financial assurance can be provided to the CPM and CDFG in the form of an irrevocable letter of credit, a pledged savings account or Security prior to initiating construction-related ground-disturbing project activities. Prior to submittal to the CPM, the Security shall be approved by the CPM and BLM's Authorized Officer, in consultation with CDFG and the USFWS, to ensure sufficient funding. As of the

publication of the SA/DEIS, this amount is \$300,960 (\$248,520 if the Reduced Acreage Alternative were adopted). These amounts may change based on changes in land costs or the estimated costs of enhancement and endowment (see subsection C.2.4.2, Desert Tortoise, for a discussion of the assumptions used in calculating the Security, which are based on an estimate of \$2,280 per acre to fund acquisition, enhancement and long-term management). The final amount due shall be determined by the PAR analysis conducted pursuant to **BIO-12**.

- 3. Preparation of Management Plan: The project owner shall submit to the CPM and CDFG a draft Management Plan that reflects site-specific enhancement measures for the drainages on the acquired compensation lands. The objective of the Management Plan shall be to enhance the wildlife value of the drainages, and may include enhancement actions such as weed control, fencing to exclude livestock, or erosion control.
- 4. Code of Regulations: The Project owner shall provide a copy of this condition (Condition of Certification BIO-22) from the Energy Commission Final Decision to all contractors, subcontractors, and other on-site personnel. Copies shall be readily available at work sites at all times during periods of active work and must be presented to any CDFG personnel upon demand. The CPM reserves the right to issue a stop work order or allow CDFG to issue a stop work order after giving notice to the Project owner and the CPM, if the CPM in consultation with CDFG determines that the Project owner has breached any of the terms or conditions or for other reasons, including but not limited to the following:
 - a. The information provided by the Applicant regarding impacts to waters of the state is incomplete or inaccurate;
 - New information becomes available that was not known to staff in preparing the terms and conditions; or
 - c. The Project or Project activities as described in the Staff Assessment have changed.

- 5. <u>Best Management Practices</u>: The Project owner shall also comply with the following conditions to protect drainages within the approved impact areas as defined in the approved construction documents near the Project Disturbance Area:
 - a. The Project owner shall minimize road building, construction activities and vegetation clearing within ephemeral drainages to the extent feasible.
 - b. The Project owner shall not allow water containing mud, silt, or other pollutants from grading, aggregate washing, or other activities to enter ephemeral drainages or be placed in locations that may be subjected to high storm flows.
 - c. The Project owner shall comply with all litter and pollution laws. All contractors, subcontractors, and employees shall also obey these laws, and it shall be the responsibility of the Project owner to ensure compliance.
 - d. Spoil sites shall be located at least 30 feet from the boundaries and drainages or in locations that may be subjected to high storm flows, where spoils might be washed back into drainages.
 - e. Raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to vegetation or wildlife resources, resulting from Project-related activities, shall be prevented from contaminating the soil and/or entering waters of the state. These materials, placed within or where they may enter a drainage, shall be removed immediately.
 - f. No broken concrete, debris, soil, silt, sand, bark, slash, sawdust, rubbish, cement or concrete or washings thereof, oil or petroleum products or other organic or earthen material from any construction or associated activity of whatever nature shall be allowed to enter into.

- or placed where it may be washed by rainfall or runoff into waters of the state.
- g. When operations are completed, any excess materials or debris shall be removed from the work area.
- h. No equipment maintenance shall occur within 150 feet of any ephemeral drainage where petroleum products or other pollutants from the equipment may enter these areas under any flow.

<u>Verification:</u> No less than 30 days prior to the start of construction-related ground disturbance activities potentially affecting waters of the state, the Project owner shall provide written verification (i.e., through incorporation into the BRMIMP) to the CPM that the above best management practices shall be implemented. The project owner shall also provide a discussion of work in waters of the state in Compliance Reports for the duration of the Project.

No less than 30 days prior to beginning *of construction-related* Project ground-disturbing activities, the Project owner shall provide written verification of Security in accordance with this condition of certification. The Project owner, or an approved third party, shall complete and provide written verification of the proposed compensation lands acquisition within 18 months of the start of *construction-related* Project ground-disturbing activities.

The Project owner, or an approved third party, shall provide BLM's Authorized Officer, the CPM, CDFG and USFWS with a *draft* management plan for the compensation lands and associated funds within 180 days of the land or easement purchase, as determined by the date on the title. The CPM and BLM's Authorized Officer shall review and approve the management plan, in consultation with CDFG.

Within 90 days after completion of Project construction, the Project owner shall provide to the CPM and CDFG an analysis with the final accounting of the amount of jurisdictional state waters disturbed during Project construction.

The Project owner shall provide written verification to BLM's Authorized Officer, the CPM, USFWS and CDFG that the compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient no later than 18 months after the start of construction-related ground-

disturbing activities. from docketing of the Final Energy Commission Decision for the Genesis Solar Energy Project).

The Project owner shall notify the CPM and CDFG, in writing, at least five days prior to initiation of *construction-related ground-disturbing* Project-activities in jurisdictional state waters and at least five days prior to completion of Project activities in jurisdictional areas. The Project owner shall notify the CPM and CDFG of any change of conditions to the Project, impacts to state waters, or the mitigation efforts. The notifying report shall be provided to the CPM and CDFG no later than seven days after the change of conditions is identified. As used here, change of condition refers to the process, procedures, and methods of operation of a Project; the biological and physical characteristics of a Project area; or the laws or regulations pertinent to the Project as defined below. A copy of the notifying change of conditions report shall be included in the annual reports or until it is deemed unnecessary by the CPM and CDFG.

<u>Biological Conditions</u>: a change in biological conditions includes, but is not limited to, the following: 1) the presence of biological resources within or adjacent to the Project area, whether native or non-native, not previously known to occur in the area; or 2) the presence of biological resources within or adjacent to the Project area, whether native or non-native, the status of which has changed to endangered, rare, or threatened, as defined in section 15380 of Title 14 of the California Code of Regulations.

<u>Physical Conditions</u>: a change in physical conditions includes, but is not limited to, the following: 1) a change in the morphology of a river, stream, or lake, such as the lowering of a bed or scouring of a bank, or substantial changes in stream form and configuration caused by storm events; 2) the movement of a river or stream channel to a different location; 3) a reduction of or other change in vegetation on the bed, channel, or bank of a drainage, or 4) changes to the hydrologic regime such as fluctuations in the timing or volume of water flows in a river or stream.

<u>Legal Conditions</u>: a change in legal conditions includes, but is not limited to, a change in Regulations, Statutory Law, a Judicial or Court decision, or the listing of a species, the status of which has changed to endangered, rare, or threatened, as defined in section 15380 of Title 14 of the California Code of Regulations.

CONDITION OF CERTIFICATION BIO-24

Genesis and Staff agreed to the following modifications to this Condition of Certification. Staff was also considering adding a performance standard concerning the percentage of native versus non native plants. The absolute native perennial cover is approximately 8-10 percent currently. Genesis is willing to agree to 40 percent relative cover which would be ≤12 percent absolute cover (versus 60 percent which translates into 18 percent absolute cover).

BIO-24

The Project owner shall prepare and implement a Revegetation Plan to restore all areas subject to temporary disturbance. The final Revegetation Plan shall be based on the draft Revegetation Plan submitted by the Applicant (TTEC 2010i) and shall include all revisions deemed necessary by BLM. USFWS, CDFG and the Energy Commission staff. The objectives of the Revegetation Plan shall be to stabilize disturbed soils, minimize erosion and sedimentation impacts to soil and water resources. prevent colonization by noxious weeds and other nonnative plants, salvage native plantings and seed from Project Disturbance Areas, and to achieve restoration of disturbed areas to functioning, established earlysuccessional native plant communities. Target performance standards at the end of the monitoring period shall be as follows:

- a. total absolute cover of all plants shall equal at least 30 percent;
- b. survivorship of salvaged and transplanted cacti and other native plantings shall equal 30% percent
- c. at least 90 percent (relative cover) of the *perennial* species observed within the temporarily disturbed areas shall be locally native species that naturally occur in the adjacent desert scrub habitats; and
- d. relative cover of perennial plant species shall equal at least 40 60 percent of the total vegetative cover.

<u>Verification:</u> No less than 30 days *prior to construction-related* ground disturbance activities following the docketing of the Energy Commission Final Decision or publication of BLM's Record of Decision/ROW Issuance, whichever comes first, the project owner shall submit to the CPM and BLM's Authorized Officer a final agency-approved Revegetation Plan that has been reviewed and

approved by BLM's Authorized Officer and the CPM. All modifications to the Revegetation Plan shall be made only after approval from BLM's Authorized Officer and the CPM.

Within 30 days after completion of project construction, the project owner shall provide to the CPM for review and approval a report identifying which items of the Revegetation Plan have been completed, a summary of all modifications to revegetation measures made during the project's construction phase, and which items are still outstanding.

On January 31st of each year following construction until the completion of the revegetation monitoring specified in the Revegetation Plan, t The Designated Biologist shall provide a reports to the CPM and BLM's Authorized Officer according to the reporting schedule in the Revegetation Plan that includes: a summary of revegetation activities for the year, a discussion of whether revegetation performance standards for the year were met; and recommendations for revegetation remedial action, if warranted, planned for the upcoming year. Reports will be submitted on January 31st following the relevant reporting year.

CONDITION OF CERTIFICATION BIO-27

Genesis and Staff agreed to the following modifications to the Verification to this Condition of Certification. Staff agreed to consider adding monitoring provisions to the text of the Condition and Genesis will provide a response in its rebuttal testimony.

<u>Verification:</u> No less than *30 days prior to construction-related ground disturbance*, 10 days following docketing of the Energy Commission Final Decision or publication of BLM's Record of Decision/ROW Issuance, whichever comes first, the project owner shall submit to the CPM, BLM's Authorized Officer, and CDFG a final Protection and Mitigation Plan. Modifications to the Protection and Mitigation Plan shall be made only after approval from BLM's Authorized Officer and the CPM, in consultation with CDFG.

CATEGORY II. GENESIS AND STAFF JOINT REVISED WORKSHOP MODIFICATIONS

CONDITION OF CERTIFICATION BIO-7

Genesis proposed striking a portion of the Verification to this Condition of Certification and after discussion at the Staff Assessment Workshop, Genesis agreed to remove its objection. That language is reinserted as shown below.

<u>Verification:</u> The Project owner shall submit the final-draft BRMIMP to BLM's Authorized Officer and the CPM at least 30 days prior to start of any preconstruction site mobilization and preconstruction site mobilization and construction-related ground disturbance, grading, boring, and trenching

CONDITION OF CERTIFICATION BIO-8

Genesis proposed striking a portion of the last sentence to Item 4 of this Condition of Certification and after discussion at the Staff Assessment Workshop, Genesis agreed to remove its objection. That language is reinserted as shown below.

The Designated Biologist or Biological Monitor shall walk immediately ahead of equipment walk immediately ahead of equipment during brushing and grading activities in unfenced habitat.

CONDITION OF CERTIFICATION BIO-10

Prior to the Staff Assessment Workshop Genesis proposed modifications to the second paragraph of the Verification to this Condition of Certification. After discussions with Staff, Genesis removed its objection and agreed to the language as follows.

Within 30 days after initiation of initiation of relocation and/or translocation activities, the Designated Biologist shall provide to BLM's Authorized Officer and the CPM for review and approval, a written report identifying which items of the Plan have been completed, and a summary of all modifications to measures made during implementation of the Plan.

CATEGORY III. DISPUTED CONDITIONS OF CERTIFICATION, ANALYSIS OR CONCLUSIONS

CONDITION OF CERTIFICATION BIO-7

Upon further review of the Verification to this Condition of Certification, Genesis requests the following modifications in addition to those identified above.

<u>Verification:</u> The Project owner shall submit the final-draft BRMIMP to BLM's Authorized Officer and the CPM at least 30 days prior to start of any preconstruction site mobilization and construction-related ground disturbance, grading, boring, and

trenching, and the final BRMIMP at least 7 days prior to start of any construction-related ground disturbance, grading, boring, and trenching. The BRMIMP shall contain all of the required measures included in all biological Conditions of Certification. No construction-related ground disturbance, grading, boring or trenching may occur prior to approval of the final BRMIMP by BLM's Authorized Officer and the CPM.

If any permits have not yet been received when the *final* BRMIMP is *first*-submitted, these permits shall be submitted to BLM's Authorized Officer and the CPM within 5 days of their receipt and the BRMIMP shall be revised or supplemented to reflect the permit condition(s). The Project owner shall submit to BLM's Authorized Officer and the CPM the revised or supplemented BRMIMP within 10 days of their receipt by the Project owner. Ten days following the Project owner's receipt of any additional permits. The revised-BRMIMP shall be resubmitted to BLM's Authorized Officer and the CPM. Under no circumstances will ground disturbance proceed without implementation of all permit conditions.

CONDITION OF CERTIFICATION BIO-8

After discussion at the Staff Assessment Workshop, Genesis proposes the following additional modification to the last sentence of Item 3 of the Condition of Certification to provide clarity regarding the speed limit during operations. During operations, the access road will be traveled by Project personnel as well as vendors and delivery personnel. The access road will be paved and is approximately 6.5 miles long. The speed limit proposed for operations and construction on paved roads was determined by comparing speed limits within Joshua Tree National Park (45 mph, no tortoise fencing), Mojave National Preserve (55 mph, no tortoise fencing), and Wiley's Well Road south of the Project (55 mph, no tortoise fencing).

Minimize Traffic Impacts. Vehicular traffic during Project construction and operation shall be confined to existing routes of travel to and from the Project site, and cross country vehicle and equipment use outside designated work areas shall be prohibited. The speed limit shall not exceed 25 miles per hour on all dirt roadswithin the Project area, on maintenance roads for linear facilities, or on access roads to the Project site. and 45 mph on all paved roads. There will be speed reductions posted on curves and Arizona crossings. The paved access road will be signed with awareness signs for wildlife avoidance.

Genesis proposes some additional clarifying language to the last sentence of Item 4 of the Condition of Certification as follows. This modification was developed after the Staff Assessment Workshop discussion.

The Designated Biologist or Biological Monitor shall walk immediately ahead of equipment during brushing and grading activities in unfenced habitat (i.e., outside of the cleared and fenced Plant Site).

After the Staff Assessment Workshop Genesis requests modifications to Item 9 of this Condition of Certification. Genesis will use the low-pressure steam blow technique for which noise would attenuate to 100dBA at three feet. Steam blows would take place in the power block which is approximately 3,200 feet from the fence boundary, thus allowing noise to attenuate before it reaches nesting bird or bighorn sheep habitat. Therefore, steam blows would not significantly affect bighorn sheep or breeding birds. Additionally, the site will be located 4 miles from the bighorn sheep WHMA north of the Project. It is reasonable to assume that this distance is far enough from the Project so that noise will attenuate to a level that would not disturb bighorn sheep; therefore, this minimization measure is not needed. Breeding birds that are outside the site will be avoided by the buffer recommended for nesting burrowing owls by the CDFG (1995). It is assumed that any birds that begin nesting after the noise has begun are habituated to the noise.

9. Minimize Noise Impacts. A continuous low-pressure technique shall be used for steam blows, to the extent possible, in order to reduce noise levels in sensitive habitat proximate to the Genesis Project. Loud construction noises shall be avoided within 250 feet of the site's borders, if between February 15 and April 15, to avoid impacts to breeding birds immediately outside the Project Area. The two exceptions would be: (1) if these same noise levels and types began prior to February 15, in which case, no avoidance is necessary; and (2) if nesting bird surveys confirm that no birds are nesting within 250 feet of the Project border. Loud construction activities (i.e., steam blowing, both low and high-pressure, and pile driving) shall be avoided from February 15 to April 15, which is the height of the local bighorn sheep lambing and bird breeding season (Also, see BIO-15 for additional impact avoidance measures for breeding birds).

CONDITION OF CERTIFICATION BIO-9

Genesis has developed proposed language after the Staff Assessment Workshop to modify Item 2 of this Condition of Certification. Burrow collapse during clearance may endanger tortoises and other species (e.g., badgers, kit

foxes) using the burrows. The Desert Tortoise Translocation Plan has provided direction for burrow inspection and excavation. Effective methods will also be used to insure that all shrubs and terrain are viewed from multiple angles. Therefore the following modifications have been proposed.

- 3. Desert Tortoise Clearance Surveys within the Plant Site. Following construction of the permanent perimeter security fence and the attached tortoise exclusion fence, the permanently fenced power plant site shall be cleared of tortoises by the Designated Biologist, who may be assisted by the Biological Monitors. Clearance surveys shall be conducted in accordance with the USFWS' 2009 Desert Tortoise Field Manual (Chapter 6 - Clearance Survey Protocol for the Desert Tortoise – Mojave Population) and shall consist of two surveys covering 100 percent of the project area by walking transects no more than 15-feet apart. If a desert tortoise is located on the second survey, a third survey shall be conducted. On each subsequent pass, an attempt will be made to view all shrubs and the terrain from as many angles as possible. To achieve this. transects programmed into GPS units will be either perpendicular, parallel but offset from the previous pass's transects, and/or approached from the opposite direction on each subsequent pass (Karl and Resource Design Technology, Inc., 2007) Each separate survey shall be walked in a different direction, or use off-set transects, to allow opposing alternate angles of observation. Clearance surveys of the power plant site may only be conducted when tortoises are most active (April through May or September through October). Surveys outside of these time periods require approval by USFWS and CDFG. Any tortoise located during clearance surveys of the power plant site shall be translocated relocated/ and monitored in accordance with the Desert Tortoise Relocation/Translocation Plan.
 - a. <u>Burrow Searches</u>. During clearance surveys all desert tortoise burrows, and burrows constructed by other species that might be used by desert tortoises, shall be examined by the Designated Biologist, who may be assisted by the Biological Monitors, to assess occupancy of each burrow by desert tortoises and handled in accordance with the USFWS' 2009 *Desert Tortoise Field Manual*. To prevent reentry by a tortoise or other wildlife, all burrows shall be collapsed once absence has been determined, *in accordance with the Desert Tortoise Relocation/Translocation Plan*. Tortoises taken from burrows and from

- elsewhere on the power plant site shall be relocated or translocated as described in the Desert Tortoise *Relocation/*Translocation Plan.
- b. Burrow Excavation/Handling. All potential desert tortoise burrows located during clearance surveys shall be excavated by hand, tortoises removed, and collapsed or blocked to prevent occupation by desert tortoises, in accordance with the Desert Tortoise Relocation/Translocation Plan. All desert tortoise handling and removal, and burrow excavations, including nests, shall be conducted by the Designated Biologist, who may be assisted by a Biological Monitor in accordance with the USFWS' 2009 Desert Tortoise Field Manual.

Genesis proposes the following modification to Item 4 of this Condition of Certification.

4. Reporting. The Designated Biologist shall record the following information for any desert tortoises handled: a) the locations (narrative and maps) and dates of observation; b) general condition and health, including injuries, state of healing and whether desert tortoise voided their bladders; c) location moved from and location moved to (using GPS technology); d) gender, carapace length, and diagnostic markings (i.e., identification numbers or marked lateral scutes); e) ambient temperature when handled and released; and f) digital photograph of each handled desert tortoise. Desert tortoise moved from within Project areas shall be marked and monitored in accordance with the Desert Tortoise Relocation/Translocation Plan:

Genesis proposed the following modification to the Verification to this Condition of Certification.

<u>Verification:</u> All mitigation measures and their implementation methods shall be included in the BRMIMP and implemented. Implementation of the measures shall be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of desert tortoise clearance surveys the Designated Biologist shall submit a report to BLM's Authorized Officer, the CPM, USFWS, and CDFG describing implementation of each of the mitigation measures listed above. The report shall include the desert tortoise survey results, capture and release locations of any translocated relocated desert tortoises, and any

other information needed to demonstrate compliance with the measures described above.

CONDITION OF CERTIFICATION BIO-10

Genesis proposes the following modifications for clarity.

BIO-10

The Project owner shall develop and implement a final Desert Tortoise Relocation/Translocation Plan (Plan) that is consistent with current USFWS approved guidelines, and meets the approval of BLM's Authorized Officer and the CPM. The goals of the Desert Tortoise Relocation/Translocation Plan shall be to: relocate/translocate all desert tortoises from the project site to nearby suitable habitat; minimize impacts on resident desert tortoises outside the project site; minimize stress, disturbance, and injuries to relocated/translocated tortoises; and assess the success of the relocationed/translocatedion effort through monitoring. The final Plan shall be based on the draft Desert Tortoise Relocation/Translocation Plan submitted by the Applicant (TTEC 2010a) and shall include all revisions deemed necessary by BLM, USFWS, CDFG and the Energy Commission staff.

After the Staff Assessment Workshop, Genesis developed the following modification to the Verification of this Condition of Certification to provide additional clarity regarding timing.

<u>Verification:</u> Within 30 days prior to *site mobilization and* construction-related ground disturbance,

CONDITION OF CERTIFICATION BIO-11

After the Staff Assessment Workshop, Genesis has developed the following additional language to be added to the end of Item 2 of this Condition of Certification. The purpose of this modification is to further clarify the roles of Biological Monitors after the site has been fenced and cleared for tortoises.

Monitors will only be required along the linear facilities and will not be required within the Plant Site once it has been fenced and cleared for tortoises.

CONDITION OF CERTIFICATION BIO-12

Genesis Solar, LLC believes that under NECO the compensatory mitigation for desert tortoise habitat impacts should be zero because the 1,763 acres of habitat

impacted by the Project is not "categorized" by BLM, and no sign that desert tortoises use the site was detected during protocol surveys. However, per our Proposal for Desert Tortoise Mitigation: A Habitat-Based Approach for the Genesis Solar Energy Project, we are proposing to acquire 914 acres of desert tortoise habitat to compensate for Project impacts to 914 acres of suitable or marginally suitable desert tortoise habitat, plus 23 acres of desert tortoise critical habitat. For purposes of implementing the in lieu fee program, Genesis expects the Revised Staff Assessment to develop the amount of the fee and include it in this Condition of Certification.

BIO-12

To fully mitigate for habitat loss and potential take of desert tortoise, the Project owner shall provide compensatory mitigation at a 1:1 ratio for impacts to 1,763 914 acres (the final acreage of desert tortoise habitat disturbed by the Project Project Disturbance Area), and at a 5:1 ratio for 23 acres (or the final Project Disturbance Area acreage of disturbance to desert tortoise critical habitat), within the Chuckwalla Desert Tortoise Critical Habitat Unit. The requirements for acquisition of 1,878 937 acres of compensation lands (or 1,131 acres for the Reduced Acreage Alternative) shall include the following:

- 2. Review and Approval of Compensation Lands Prior to Acquisition. A minimum of three months prior to acquisition of the property, the Project owner shall submit a formal acquisition proposal to the CPM, BLM's Authorized Officer, CDFG, and USFWS describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands for desert tortoise in relation to the criteria listed above. Approval from the CPM and CDFG, in consultation with BLM and the USFWS, shall be required for acquisition of all parcels comprising the 1,878-937 acres.
- 3. Mitigation Security: The Project owner shall provide financial assurances to the CPM and CDFG, with copies of the document(s) to BLM and the USFWS, to guarantee that an adequate level of funding is available to implement the mitigation measures described in this condition. These funds shall be used solely for implementation of the measures associated with the Project. Financial assurance can be provided to the CPM and BLM's

Authorized Officer in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security") prior to initiating construction-related ground-disturbing Project activities. Prior to submittal to the CPM, the Security shall be approved by the CPM and BLM's Authorized Officer, in consultation with CDFG and the USFWS, to ensure sufficient funding. As of the publication of the SA/DEIS, this amount is \$4,281,840 \$2,136,360 (\$2,578,680 if the Reduced Acreage Alternative were adopted). This Security amount may be revised based on land costs or the estimated costs of enhancement and endowment (see subsection C.2.4.2, Desert Tortoise, for a discussion of the assumptions used in calculating the Security, which are based on an estimate of \$2,280 per acre to fund acquisition. enhancement, and long-term management). The final amount due will be determined by the PAR analysis conducted pursuant to this condition.

- 4. Compensation Lands Acquisition Conditions: The Project owner shall comply with the following conditions relating to acquisition of the compensation lands after the CPM and BLM's Authorized Officer, in consultation with CDFG and USFWS, have approved the proposed compensation lands and received Security as applicable and as described above.
 - a. Preliminary Report: The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary documents for the proposed—1,878 937 acres. All documents conveying or conserving compensation lands and all conditions of title/easement are subject to a field review and approval by the CPM and BLM's Authorized Officer, in consultation with CDFG and the USFWS, California Department of General Services and, if applicable, the Fish and Game Commission and/or the Wildlife Conservation Board.
 - b. <u>Title/Conveyance</u>: The Project owner shall transfer fee title or a conservation easement to

the 1,878-937 acres of compensation lands to CDFG under terms approved by the CPM and CDFG. Alternatively, a non-profit organization qualified to manage compensation lands (pursuant to California Government Code section 65965) and approved by CDFG and the CPM may hold fee title or a conservation easement over the habitat mitigation lands. If the approved non-profit organization holds title. a conservation easement shall be recorded in favor of CDFG in a form approved by CDFG. If the approved non-profit holds a conservation easement, CDFG shall be named a third party beneficiary. If a Security is provided, the Project owner or an approved third party shall complete the proposed compensation lands acquisition within 18 months of the start of Project ground-disturbing activities.

- c. Initial Habitat Improvement Fund. The Project owner shall fund the initial protection and habitat improvement of the 1,878 937 acres. Alternatively, a non-profit organization may hold the habitat improvement funds if they are qualified to manage the compensation lands (pursuant to California Government Code section 65965) and if they meet the approval of CDFG and the CPM. If CDFG takes fee title to the compensation lands, the habitat improvement fund must go to CDFG.
- d. Conduct a Property Analysis Record. Upon identification of the mitigation lands the project owner shall conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate endowment to fund the inperpetuity management of the acquired mitigation lands.
- e. Long-term Management Endowment Fund. Prior to ground-disturbing Project activities, the Project owner shall provide to CDFG a non-wasting capital endowment in the amount determined through the Property Analysis Record (PAR) or PAR-like analysis that would be conducted for the 1,878 937 acres. Alternatively, a non-profit organization may

hold the endowment fees if they are qualified to manage the compensation lands (pursuant to California Government Code section 65965) and if they meet the approval of CDFG and the CPM. If CDFG takes fee title to the compensation lands, the endowment must go to CDFG, where it would be held in the special deposit fund established pursuant to California Government Code section 16370. If the special deposit fund is not used to manage the endowment, the California Wildlife Foundation or similarly approved entity identified by CDFG shall manage the endowment for CDFG and with CDFG supervision.

- f. Interest, Principal, and Pooling of Funds. The Project owner, CDFG and the CPM shall ensure that an agreement is in place with the endowment holder/manager to ensure the following conditions:
 - i. Interest. Interest generated from the initial capital endowment shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action approved by CDFG designed to protect or improve the habitat values of the compensation lands.
 - ii. Withdrawal of Principal. The endowment principal shall not be drawn upon unless such withdrawal is deemed necessary by the CDFG or the approved third-party endowment manager to ensure the continued viability of the species on the 1,878 937 acres. If CDFG takes fee title to the compensation lands, monies received by CDFG pursuant to this provision shall be deposited in a special deposit fund established pursuant to Government Code section 16370. If the special deposit fund is not used to manage the endowment, the

- California Wildlife Foundation or similarly approved entity identified by CDFG would manage the endowment for CDFG with CDFG supervision.
- iii. Pooling Endowment Funds. CDFG, or a CPM and CDFG approved non-profit organization qualified to hold endowments pursuant to California Government Code section 65965, may pool the endowment with other endowments for the operation, management, and protection of the 1,878 937 acres for local populations of desert tortoise. However, for reporting purposes, the endowment fund must be tracked and reported individually to the CDFG and CPM.
- iv. Reimbursement Fund. The Project owner shall provide reimbursement to CDFG or an approved third party for reasonable expenses incurred during title, easement, and documentation review; expenses incurred from other state or state approved federal agency reviews; and overhead related to providing compensation lands.
- g. Payment Of In Lieu Fee: Applicant may choose to satisfy its mitigation obligations by paying an in lieu fee instead of acquiring compensation lands, pursuant to California Senate Bill 34 (enacting CESA § 2069) or any applicable BLM in lieu fee provision, to the extent the chosen provision is applicable to satisfy the Applicant's mitigation obligations.

The Project owner is responsible for all compensation lands acquisition/easement costs, including but not limited to, title and document review costs, as well as expenses incurred from other state agency reviews and overhead related to providing compensation lands to the department or approved third party; escrow fees or costs; environmental contaminants clearance; and other site cleanup measures.

Genesis proposes the following modification to the Verification of this Condition of Certification to reflect the in lieu fee program.

<u>Verification:</u> At least 30 days prior to the start of construction-related ground disturbance activities, the Project owner shall provide written verification of Security in accordance with this condition of certification. The Project owner, or an approved third party, shall complete and provide written verification of the proposed compensation lands acquisition, *or the payment of any in lieu fees*, within 18 months of the start of construction-related ground disturbance activities.

CONDITION OF CERTIFICATION BIO-15

Genesis proposes the following modification to this Condition of Certification. If one survey is within 14 days of pre-construction, then it will find all of the current nests. A second survey 10 days prior would be too early.

- Pre-construction nest surveys shall be conducted if construction activities would occur at any time during the period of February 1 through August 31 June 1st. The Designated Biologist or Biological Monitor conducting the surveys shall be experienced bird surveyors familiar with standard nest-locating techniques and shall perform surveys in accordance with the following guidelines:
 - 1. Surveys shall cover all potential nesting habitat in the Project site or within 500 feet of the boundaries of the site (including linear facilities);
 - 2. At least two *One* pre-construction surveys shall be conducted, separated by a minimum 10 day interval. One of the surveys shall be conducted within the 14-day period preceding initiation of construction activity. Additional follow-up surveys may be required if periods of construction inactivity exceed three weeks, an interval during which birds may establish a nesting territory and initiate egg laying and incubation;

CONDITION OF CERTIFICATION BIO-17

Genesis requests the following additional modifications to this Condition of Certification.

BIO-17 To avoid direct impacts to American badgers and desert kit fox, pre-construction surveys shall be conducted for these species concurrent with the desert tortoise surveys. Surveys shall be conducted as described below:

Biological Monitors shall perform pre-construction surveys for badger and kit fox dens in the Project area, including areas within 90 feet of the perimeter fence, utility corridors, and access roads. *Surveys may be concurrent with desert tortoise surveys.* If dens are detected each den shall be classified as inactive, potentially active, or definitely active.

Inactive dens that would be directly impacted by construction activities shall be excavated by hand and backfilled to prevent reuse by badgers or kit fox. Potentially and definitely active dens that would be directly impacted by construction activities shall be monitored by the Biological Monitor for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) and/or infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den shall be excavated and backfilled by hand. If tracks are observed, and especially if high or low ambient temperatures could potentially result in harm to kit fox or badger from burrow exclusion, various passive hazing methods may be used to discourage the-den shall be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) occupants for the next three to five nights to discourage the badger or kit fox-from continued use. After verification that the den is unoccupied it shall then be excavated and backfilled by hand to ensure that no badgers or kit fox are trapped in the den. Badgers or foxes may also be trapped in Havahart or other live traps and removed. BLM approval may be required prior to release of badgers on public lands.

CONDITION OF CERTIFICATION BIO-18

Genesis proposes the following modifications to this Condition of Certification to reflect that CBOC guidelines suggest a maximum compensation ratio of 19.5 acres per pair or single bird. The compensation acreage of 19.5 acres per pair of owls is based on not being able to identify that the compensation lands are occupied by burrowing owls. Burrowing owls are not abundant, but are commonly occurring in desert habitats (see results from other Project surveys). However, data bases with burrowing owl records are too incomplete (e.g., CNDDB 2010) to be used as a measure of burrowing owl occupation in the desert. So, the requirement to conduct intensive surveys simply to establish owl

use near the compensation lands is unreasonable. Suitable habitat that is not isolated such that it would be unusable by owls, or, even if usable, would not contribute to the population, is a biologically reasonable criterion for compensation lands.

- BIO-18 The Project owner shall implement the following measures to avoid, minimize and offset impacts to burrowing owls:
 - Pre-Construction Surveys. The Designated Biologist or Biological Monitor shall conduct preconstruction surveys for burrowing owls in accordance with CDFG guidelines (California Burrowing Owl Consortium 1993). The survey area shall include the Project Disturbance Area and surrounding 500 foot survey buffer.
 - 4. Acquire Compensatory Mitigation Lands for Burrowing Owls. The following measures for compensatory mitigation shall apply only if burrowing owls are detected within the Project Disturbance Area which need to be relocated. The Project owner shall acquire, in fee or in easement, 39 19.5 acres of land for each pair of nesting owls that is displaced by construction of the Project. The project owner shall provide funding for the enhancement and long-term management of these compensation lands. The acquisition and management of the compensation lands may be delegated by written agreement to CDFG or to a third party, such as a non-governmental organization dedicated to habitat conservation, subject to approval by the CPM, in consultation with CDFG and USFWS prior to land acquisition or management activities. Additional funds shall be based on the adjusted market value of compensation lands at the time of construction to acquire and manage habitat.
 - a. <u>Criteria for Burrowing Owl Mitigation Lands.</u>
 The terms and conditions of this acquisition or easement shall be as described in BIO-12 [Desert Tortoise Compensatory Mitigation], with the additional criteria to include: 1) the 39 19.5 acres of mitigation land per pair or single

bird must provide suitable habitat for burrowing owls and 2) may not be isolated from other suitable burrowing owl habitat such that the compensation area would comprise a habitat island that would either not be used by owls or would contribute little to nothing to the population and species conservation. -The 39 19.5 acres of burrowing owl mitigation lands may be included with the 1.878 937 acres of desert tortoise mitigation lands ONLY if the burrowing owl criteria are is met. If the 39 19.5 acres of burrowing owl mitigation land is separate from the 1,878 937 acres required for desert tortoise compensation lands, the Project owner shall fulfill the requirements described below in this condition.

b. Security. The Security measures described below is based on the assumption that one pair of *nesting* owls would be impacted by construction of the Project, and would therefore require 39 19.5 acres of compensatory mitigation land. If the 39 19.5 acres of burrowing owl mitigation land is separate from the acreage required for desert tortoise compensation lands the Project owner or an approved third party shall complete acquisition of the proposed compensation lands prior to initiating ground-disturbing Project activities. Alternatively, financial assurance can be provided by the Project owner to the CPM and CDFG with copies of the document(s) to BLM and the USFWS, to guarantee that an adequate level of funding is available to implement the mitigation measure described in this condition. These funds shall be used solely for implementation of the measures associated with the Project. Financial assurance can be provided to the CPM and the BLM's Authorized Officer in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security") prior to initiating ground-disturbing Project activities. Prior to submittal to the CPM, the Security shall be approved by the CPM and BLM's Authorized Officer, in consultation with CDFG and the USFWS to ensure funding. As of the

publication of the SA/DEIS, this amount is \$44,460 but this amount may change based on land costs or the estimated costs of enhancement and endowment (see subsection C.2.4.2, Desert Tortoise, for a discussion of the assumptions used in calculating the Security, which are based on an estimate of \$2,280 per acre to fund acquisition, enhancement, and long-term management). The final amount due will be determined by the PAR analysis conducted pursuant to **BIO-12**.

<u>Verification:</u> If pre-construction surveys detect burrowing owls within 500 feet of proposed construction activities, the Designated Biologist shall provide to the CPM and BLM's Authorized Officer documentation indicating that non-disturbance buffer fencing has been installed at least 10 days prior to the start of any construction-related ground disturbance activities. The Project owner shall report monthly to BLM's Authorized Officer, the CPM, CDFG and USFWS for the duration of construction on the implementation of burrowing owl avoidance and minimization measures. Within 30 days after completion of construction the Project owner shall provide to the CDFG and CPM a written construction termination report identifying how mitigation measures described in the plan have been completed.

If pre-construction surveys detect burrowing owls within the Project Disturbance Area and relocation of the owls is required, the Project owner shall do the following:

- a. Within 30 days of completion of the burrowing owl preconstruction surveys, submit to BLM's Authorized Officer, the CPM, CDFG and USFWS a Burrowing Owl Mitigation Plan.
- b. No less than 90 days prior to acquisition of the burrowing owl compensation lands, the Project owner, or an approved third party, shall submit a formal acquisition proposal to the CPM, BLM's Authorized Officer, CDFG, and USFWS describing the 39 19.5-acre parcel intended for purchase. At the same time the project owner shall submit a PAR or PAR-like analysis for the parcels for review and approval by the CPM, BLM's Authorized Officer, CDFG and USFWS.
- c. Within 90 days of the land or easement purchase, as determined by the date on the title, the Project owner shall provide the CPM and BLM's Authorized Officer with a management plan for review and approval, in consultation with

- CDFG and USFWS, for the compensation lands and associated funds.
- d. No later than 30 days prior to the start of construction-related ground-disturbing activities, the project owner shall provide written verification of Security in accordance with this condition of certification.
- e. No later than 18 months after the start of construction-related ground disturbance activities, the Project owner shall provide written verification to the BLM's Authorized Officer, the CPM and CDFG that the 39 19.5 acres of compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient.
- f. On January 31st of each year following construction for a period of five years, the Designated Biologist shall provide a report to the CPM, BLM's Authorized Officer, USFWS and CDFG that describes the results of monitoring and management of the burrowing owl relocation area.

CONDITION OF CERTIFICATION BIO-19

Genesis proposes the following modification Item 1 of this Condition of Certification to reflect comprehensive field surveys were conducted in Spring 2009 for the entire Project Site and in Spring 2010 for portions of the linear route that were not previously surveyed. Additional pre-construction surveys, with the exception of the summer-fall surveys discussed below, are not necessary.

Additionally, Genesis does not believe that all of the plant species named in the condition occur within the entire Project Area. The weather is not within the Genesis' control, and therefore Genesis should not be required to compensate for these species if there is insufficient rainfall to support conclusive survey results. Glandular ditaxis is reported to be a spring-flowering species by species experts.

Preconstruction Surveys: The project owner shall retain a qualified botanist to conduct pre-construction surveys in 2010 within the Project site and a 100 foot buffer around the solar power plant site and linears. The project owner shall retain a qualified botanist to conduct Spring 2010 surveys of the previously unsurveyed portions of the Project. The surveys shall include the following species (in addition to those contained on the target list for the 2009 surveys [GSEP 2009a]): winged Cryptantha, angel trumpets, white-margined penstemon, Palmer's jackass clover, small-flowered Androstephium, argus

blazing star, bitter Hymenoxys, spiny abrojo, pink velvet mallow, and desert portulaca.

Additional summer-fall surveys shall be conducted of the entire portions of the Project Area that can be reasonably expected to host fall-blooming special-status species

Project Disturbance Area, and shall target the following late-season special-status plant species: glandular ditaxis, Abram's spurge, lobed ground cherry, angel trumpets, flat-seeded spurge, pink velvet mallow, and desert portulaca (CEC 2009d). The surveys should be timed to follow summer a 'significant' rains. event of at least 12-18 mm (Andre pers comm). If results of surveys are inconclusive due to inadequate rainfall, then compensatory mitigation shall be required on the basis of habitat loss.

A botanical survey report and map detailing the results of the spring and summer/fall 2010 surveys shall be submitted to the CPM and BLM's Authorized Officer no later than December 31, 2010. The map shall clearly depict the occurrences and the Project features and indicate which occurrences shall be preserved, and include a description of each occurrence (population size, associated species, any distinctive characteristics, reproduction, etc).

Genesis also proposes modifications to Item 3 of this Condition of Certification because if Staff assumes that the species could be expected to be at the Project Area, then acreage for one species in a specific habitat type would meet the criteria for other species in that habitat type, assuming it was in the range of both species. In that case, species do not have to be considered separately.

3. <u>Preserve and Manage Compensatory Habitat and Criteria for Abram's spurge, glandular ditaxis, flat-seeded spurge, and lobed ground cherry:</u>

To compensate for potential impacts to Abram's spurge, glandular ditaxis, flat-seeded spurge, and lobed ground cherry, the project owner shall acquire compensatory mitigation land as follows:

- Abram's spurge: playa (38 acres); dunes (28 acres); desert washes (91 acres).
- Glandular ditaxis: desert washes (91 acres).
- <u>Flat-seeded spurge</u>: playa (38 acres); dunes (28 acres).
- Lobed ground cherry: playa (38 acres).

The criteria need to be met on a species by species bases, the acreages totals for these special-status species are 38 114 acres of playa and sand drift over playa habitat, 28 56 acres of dune habitat, and 91 182 acres of desert wash habitat (including at least 16 acres of microphyll woodland – see BIO-22 in this subsections for more details). Habitat acquisition for these species may also be integrated with habitat compensation for other species if the criteria listed below are met.

The compensatory lands acquired for each of these species must meet at least one of the following criteria:

- a. Contain occupied habitat for an occurrence anywhere in the species' range in California;
- b. Contain unoccupied habitat that is in the immediate watershed of an extant occurrence in California and considered to have a high potential for occurrence, or;
- Provide watershed protection to extant and protected occurrences on federal land regardless of the habitat the acquired lands support.

Genesis proposes the following modifications to Item 4 of this Condition of Certification because it requires extensive surveys beyond that required for a listed species (e.g., the desert tortoise).

4. The compensatory lands shall meet the following additional criteria 1) provide habitat for the special-status plant species that is of similar or better quality than that impacted; *OR* 2) contain OR abut land that contains occurrences that are stable, recovering, or likely to recover; and 3) be adequately sized and buffered to support self-sustaining special-status plant populations. These mitigation lands may be included with the desert tortoise mitigation lands, dunes/Mojave fringe-toed lizard mitigation lands, and desert wash mitigation lands ONLY if the above criteria are met.

The compensatory mitigation would not be required if 2010 botanical surveys definitively rule out potential presence of these species (i.e., surveys were conducted at the appropriate time of year-and-under appropriate environmental conditions. Habitat acquisition for special status plants may also be integrated with compensatory mitigation described in Conditions of Certification BIO-12, BIO-20, and BIO-22 if the criteria listed above are met.

Genesis proposes the following modification to Item 5 of this Condition of Certification to reflect the amount of Security that is commensurate with the mitigation Genesis believes should be required.

Security. The Project owner shall provide financial assurances to the CPM and BLM to guarantee that an adequate level of funding is available to implement the mitigation measures described in this condition. These funds shall be used solely for implementation of the measures associated with the Project, Financial assurance can be provided to the CPM and BLM's Authorized Officer in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security") prior to initiating ground-disturbing Project activities. Prior to submittal to the CPM, the Security shall be approved by the CPM and BLM's Authorized Officer, in consultation with CDFG and the USFWS, to ensure sufficient funding. As of the publication of the SA/DEIS, this amount is \$802,560 \$357,960. This amount may change based on land costs or the estimated costs of enhancement and endowment (see subsection C.2.4.2. Desert Tortoise. for a discussion of the assumptions used in calculating the Security, which are based on an estimate of \$2,280 per acre to fund acquisition, enhancement and long-term management).

CONDITION OF CERTIFICATION BIO-20

Genesis agrees with the 3:1 compensation for direct Project impacts to sand dune habitat, but disagrees with any additional mitigation requirements. Because Genesis has agreed to drop the easternmost portion of the Plant Site (41.4 acres, See attached Figure), the acreage of direct impact to sand dunes by the Plant Site would be eliminated. Project impacts to the sand dunes would be reduced to 0.8 acres, the entirety of which is located along the Linear Facilities. At 0.8 acres of direct impact, at a 3:1 ratio the compensation requirement would be 2.4 acres.

Mojave fringe-toed lizards are dune and loose-sand specialists. Mojave fringe-toed lizard sightings during intensive, focused surveys in both 2009 and 2010 that included 100% of the Project Area, 100% of an extension south of the Project Area in the area CEC Staff has indicated as a potential sand shadow area, and buffer transects extending outward from all 100% survey areas (see attached Figure; TTEC and Karl 2009) show that this species is most closely associated with Stabilized and Partially Stabilized Sand Dunes on and around the Project Disturbance Area.

To augment the potential identification of Mojave fringe-toed lizard habitat, observations of ribbed cryptantha (*Cryptantha costata*), also a loose sand associate, were mapped with those of Mojave fringe-toed lizard (see attached Figure). Assuming that both species adequately identify loose sand that could be occupied by Mojave fringe-toed lizard habitat, it can be seen that there is no suitable habitat for Mojave fringe-toed lizard habitat in the area south of the

eastern toe of the Project Disturbance Area in the area the CEC identified as a potential eastern sand shadow, and very minimal habitat (one drainage) in the area the CEC identified as a potential westerly sand shadow. Based on these associations, there is little potential for direct or indirect impacts to Mojave fringetoed lizard in the areas that CEC staff designated as potential sand shadows. Therefore Genesis requests this Condition of Certification be modified as follows.

BIO-20 The project owner shall mitigate for direct and indirect impacts to stabilized and partially stabilized sand dunes and other Mojave fringe-toed lizard habitat by acquisition of 424 acres of Mojave fringe-toed lizard habitat, at least 2.4 acres of which shall be stabilized or partially stabilized desert dune. The project owner shall provide funding for the acquisition, initial habitat improvements and long-term management

endowment of the compensation lands.

- Criteria for Compensation Lands: The compensation lands selected for acquisition shall:
 - a. Provide suitable habitat for Mojave fringe-toed lizards, and may include stabilized and partially stabilized desert dunes or sand drifts over playas or Sonoran creosote bush scrub;
 - b. As much as possible, be within the Chuckwalla Valley with potential to contribute to Mojave fringe-toed lizard habitat connectivity and build linkages between known populations of Mojave fringe-toed lizards and preserve lands with suitable habitat
 - c. Be connected to lands that are either currently occupied or have high potential to be occupied by Mojave fringe-toed lizard based on patch size and habitat quality;
 - d. Be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a nongovernmental organization dedicated to habitat preservation;
 - e. Not have a history of intensive recreational use or other disturbance that might make habitat recovery and restoration infeasible;

- f. Not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration:
- g. Not contain hazardous wastes;
- h. Not be subject to property constraints (i.e. mineral leases, cultural resources); and
- Be on land for which long-term management is feasible.
- 2. Security for Implementation of Mitigation: The project owner shall provide financial assurances to the CPM and BLM's Authorized Officer to guarantee that an adequate level of funding is available to implement the acquisitions and enhancement of Moiave fringe-toed lizard habitat as described in this condition. These funds shall be used solely for implementation of the measures associated with the Project. Financial assurance can be provided to the CPM and BLM's Authorized Officer in the form of an irrevocable letter of credit, a pledged savings account or Security prior to initiating ground-disturbing project activities. The Security shall be approved by the CPM and BLM's Authorized Officer, in consultation with CDFG and the USFWS, to ensure sufficient funding. As of the publication of the SA/DEIS, this amount is \$966,720 \$5,472 (\$310,080 If the Reduced Acreage Alternative were adopted). This amount may change based on land costs or the estimated costs of enhancement and endowment (see subsection C.2.4.2, Desert Tortoise, for a discussion of the assumptions used in calculating the Security, which are based on an estimate of \$2,280 per acre to fund acquisition, enhancement and long-term management).
- 3. <u>Preparation of Management Plan:</u> The project owner shall submit to the CPM, BLM's Authorized Officer, CDFG and USFWS a draft Management Plan that reflects site-specific enhancement measures for the Mojave fringe-toed lizard habitat

on the acquired compensation lands. The objective of the Management Plan shall be to enhance the value of the compensation lands for Mojave fringe-toed lizards, and may include enhancement actions such as weed control, fencing to exclude livestock, erosion control, or protection of sand sources or sand transport corridors.

<u>Verification:</u> No later than 30 days prior to beginning construction-related Project-ground-disturbing activities, the Project owner shall provide written verification of Security in accordance with this condition of certification. The Project owner, or an approved third party, shall complete and provide written verification of the proposed compensation lands acquisition within 18 months of the start of construction-related Project-ground-disturbing activities.

No less than 90 days prior to acquisition of the property, the Project owner shall submit a formal acquisition proposal to BLM's Authorized Officer, the CPM, CDFG, and USFWS describing the parcels intended for purchase. At the same time the project owner shall submit a PAR or PAR-like analysis for the parcels for review and approval by the CPM, BLM's Authorized Officer, CDFG and USFWS.

The Project owner, or an approved third party, shall provide BLM's Authorized Officer, the CPM, CDFG and USFWS with a management plan for the compensation lands and associated funds within 180 days of the land or easement purchase, as determined by the date on the title. BLM's Authorized Officer and the CPM shall review and approve the management plan, in consultation with CDFG and the USFWS.

Within 90 days after completion of Project construction, the Project owner shall provide to the CPM and CDFG an analysis with the final accounting of the amount of Mojave fringe-toed lizard habitat disturbed during Project construction.

The Project owner shall provide written verification to BLM's Authorized Officer, the CPM, USFWS and CDFG that the compensation lands or conservation easements have been acquired and recorded in favor of the approved recipient no later than 18 months after the initiation of construction-related ground disturbance activities from docketing of

the Final Energy Commission Decision for the Genesis Solar Energy Project.

CONDITION OF CERTIFICATION BIO-21

Genesis proposes the following modification to this Condition of Certification to allow a variety of deterrent methods to be employed to discourage bird use of the evaporation ponds, including but not limited to netting, be considered in this Condition of Certification to allow for flexibility.

BIO-21

The Project owner shall investigate feasible and effective technologies cover the evaporation ponds prior to any discharge with 1.5-inch mesh netting designed to exclude birds and other wildlife from drinking or landing on the water of the ponds.-Netting with mesh sizes other than 1.5-inches may be installed if approved by the CPM in consultation with CDFG and USFWS. The netted ponds shall be monitored regularly to verify that the *technology* netting-remains-intact, is fulfilling its function in excluding birds and other wildlife from the ponds. The effectiveness of each technology shall be monitored and analyzed. An Adaptive Management program will be implemented to ensure that the optimal exclusion technologies are implemented. and does not pose an entanglement threat to birds and other wildlife. The ponds shall include a visual deterrent in addition to the netting, and the pond shall be designed such that the netting shall never contact the water. Monitoring of the evaporation ponds shall include the following:

1. Monthly Monitoring. The Designated Biologist or Biological Monitor shall regularly survey the ponds at least once per month starting with the first month of operation of the evaporation ponds. The purpose of the surveys shall be to determine if the selected technology is netted ponds are effective in excluding birds and wildlife., if the nets pose an entrapment hazard to birds and wildlife, and to assess the structural integrity of the nets. Surveys shall be of sufficient duration and intensity to provide an accurate assessment of bird and wildlife use of the ponds during all seasons. Surveyors shall be experienced with bird identification and survey techniques. Operations

- staff at the Project site shall also report finding any dead birds or other wildlife at the evaporation ponds to the Designated Biologist within one day of the detection of the carcass. The Designated Biologists shall report any bird or other wildlife deaths or entanglements within two days of the discovery to the CPM, CDFG, and USFWS.
- 2. <u>Dead or Entangled Birds</u>. If dead-or entangled birds are detected, the Designated Biologist shall take immediate action to assess the situation and to correct the source of mortality or entanglement-if appropriate. The Designated Biologist shall make immediate efforts to contact and consult the CPM, CDFG, and USFWS by phone and electronic communications prior to taking remedial action upon detection of the problem, but the inability to reach these parties shall not delay taking action that would, in the judgment of the Designated Biologist, prevent further mortality of birds or other wildlife at the evaporation ponds.
- 3. Quarterly Monitoring. If after 12 consecutive monthly site visits no bird or wildlife deaths-or entanglements are detected at the evaporation pond by or reported to the Designated Biologist, monitoring can be reduced to quarterly visits.
- 4. Biannual Monitoring. If after 12 consecutive quarterly site visits no bird or wildlife deaths er entanglements are detected by or reported to the Designated Biologist, and with approval from the CPM, USFWS and CDFG, future surveys may be reduced to two surveys per years, during the spring nesting season and during fall migration. If approved by the CPM, USFWS and CDFG, monitoring outside the nesting season may be conducted by the Environmental Compliance Manager.
- 5. Modification of Monitoring Program. Without respect to the above requirements, the project owner, CDFG or USFWS may submit to the CPM a request for modifications to the evaporation pond monitoring program based on information acquired during monitoring, and may also suggest

adaptive management measures to remedy any problems that are detected during monitoring or modifications if bird impacts are not observed. Modifications to the evaporation pond monitoring described above and implementation of adaptive management measures shall be made only after approval from the CPM, in consultation with USFWS and CDFG.

Verification: No less than 30 days prior to operation of the evaporation ponds the project owner shall provide to the CPM asbuilt drawings and photographs of the ponds indicating that the selected technology bird exclusion netting has been installed. For the first year of operation the Designated Biologist shall submit quarterly reports to the CPM, CDFG, and USFWS describing the dates, durations and results of site visits conducted at the evaporation ponds. Thereafter the Designated Biologist shall submit annual monitoring reports with this information. The quarterly and annual reports shall fully describe any bird or wildlife death or entanglements detected during the site visits or at any other time, and shall describe actions taken to remedy these problems. The annual report shall be submitted to the CPM, CDFG, and USFWS no later than January 31st of every year for the life of the project. All reports will compare and contrast the relative success of each of the exclusion technologies being implemented, and will provide adaptive management suggestions to optimize the overall success of avian and wildlife protection at the evaporation ponds.

The Project owner shall submit proposed exclusion technologies for the evaporation ponds to the CPM, BLM's Authorized Officer, USFWS, and CDFG for approval at least 60 days prior to construction-related ground disturbance activities. A final, approved exclusion technology design and monitoring plan will be submitted to the CPM, BLM's Authorized Officer, USFWS and CDFG 30 days prior to construction-related ground disturbance activities.

CONDITION OF CERTIFICATION BIO-23

This condition requires a Decommissioning and Reclamation Plan. Genesis agrees that such a plan is required by federal regulations but does not believe that it can prepare a plan now to restore the site to natural conditions. The full disturbance area will have been mitigated by the Conditions of Certification and therefore the only requirement for such a plan is BLM administering regulations. The ultimate decision of what land use to which the site should be reclaimed lies with BLM. Genesis requests the details of the plan be administered by BLM and has modified the Condition accordingly.

BIO-23

Upon Project closure the Project owner shall implement a final Decommissioning and Reclamation Plan to remove the engineered diversion channels from for the Project site. The goal of the plan shall be to restore the site's topography and hydrology to a relatively natural condition and to establish native plant communities within the Project-Disturbance Area. The Channel Decommissioning and Reclamation Plan shall include a cost estimate for implementing the proposed decommissioning and reclamation activities, and shall be consistent with the guidelines in BLM's 43 CFR 3809.550 et seg., subject to review and revisions from BLM's Authorized Officer and the CPM in consultation with USFWS and CDFG.

Verification: No less than 30 days *prior to initiating* construction-related ground disturbance activities, from docketing of the Energy Commission Final Decision for the Genesis Solar Energy Project or publication of BLM's Record of Decision/ROW Issuance, whichever comes first, the Project owner shall provide to BLM's Authorized Officer and the CPM an agency approved final a draft Decommissioning and Closure Plan. The plan shall be finalized prior to the start of commercial operation and reviewed every five years thereafter and submitted to the BLM's Authorized Officer for approval. Modifications to the approved Decommissioning and Closure Plan shall be made only after approval from BLM's Authorized Officer and the CPM, in consultation with USFWS, and CDFG.

No less than 10 days prior to initiating *construction* Project-related ground disturbance activities the Project owner shall provide financial assurances to BLM's Authorized Officer and the CPM to guarantee that an adequate level of funding would be available to implement measures described in the Decommissioning and

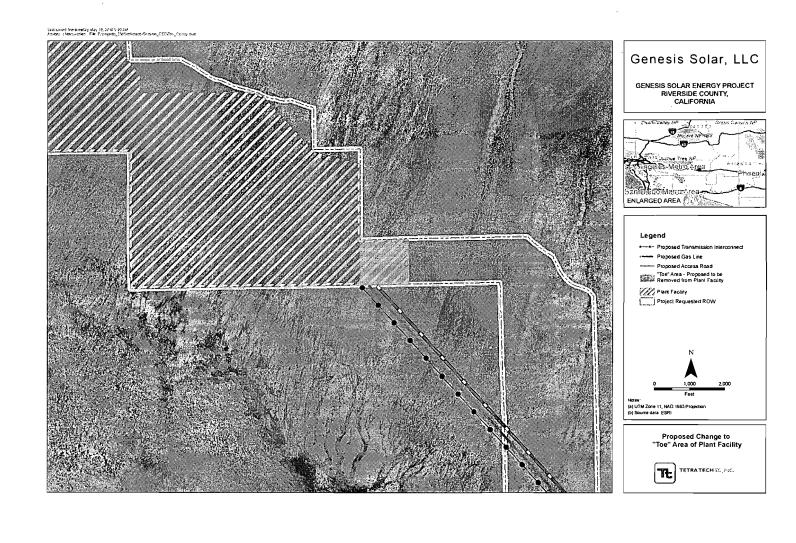
Closure Plan, consistent with the provisions set forth in 43 C.F.R. sections 2805.12 and 3809.500-.599.

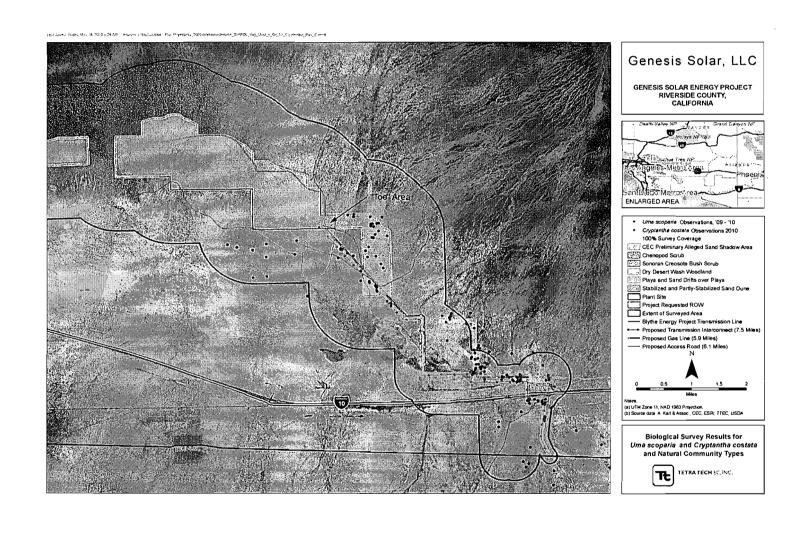
CONDITIONS OF CERTIFICATION BIO-25 AND BIO-26

Genesis has demonstrated that there are no groundwater dependent communities or vegetation within the Project Disturbance area or vicinity, including Ford Dry Lake. Additionally, the Applicant has provided current and historic information on the closest potentially groundwater dependent community (northwest of Palen Lake, west of the Project) and concluded that there will not be significant impacts to these communities as a result of the Project.

The water table below Ford Dry Lake is approximately 50 ft; under the Project Area it is 70-90 ft (Worley Parsons 2009). No obligate phreatophytes occur within the 10 mile pumping centroid of the Project wells. All tree and shrub species that occur in this zone and could be considered facultative phreatophytes (ironwood, bush seepweed, palo verde) are dependent on surface water, not ground water, even considering capillary rise. The groundwater drawdown in the honey mesquite community northwest of Palen Lake is expected to be <0.01 feet over the Project life. Even considering some level of uncertainty in modeling, it is not reasonable to consider that Genesis would affect the phreatophyte community there. Furthermore, there would be no way to separate any effects to the Palen Lake mesquite community from other project impacts in that portion of Chuckwalla Valley.

Using aerial photography to view changes in the mesquite community at northwestern Palen Lake over time, Worley Parsons (2010: Figure 28) demonstrated that the community did not change from 1977 to 2002. Groundwater pumping for agriculture in Chuckwalla Valley during the late 1970s and early 1980s lowered the water table ~39 m near Desert Center, west of Palen Lake, between 1980 and 1985; during this same period a well north of Palen Lake (Well 49) showed a groundwater decline of ~1.5 m (Worley Parsons 2010: Page 21 and Figure 18). The mesquite community at northwestern Palen Lake did not change during this period of maximum recorded historical water level drawdown in the basin, and cumulative drawdown associated with the future pumping in the basin is expected to be less than this amount. In summary, no Project effects are anticipated at Palen Lake, and the cumulative drawdown associated with future pumping in the basin is less than the historical maximum drawdown and would not affect the identified honey mesquite community. Therefore, Genesis recommends the Commission delete these Conditions of Certification.





STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

| In the Matter of: | | DOCKET NO. 09-AFC-08 |
|--|---|--|
| Application For Certification for the GENESIS SOLAR ENERGY PROJECT | | DECLARATION OF JENNA FARRELL |
| I, Jenna Far | rell, declare as follows: | |
| 1. | I am presently employed by Tetra Social Scientist/Archaeologist. | Tech EC, Inc., as an Associate |
| 2. | A copy of my professional qualification herewith (Attachment A to Testima reference in this Declaration. | eations and experience is included ony) and is incorporated by |
| 3. | I prepared the attached testimony the Genesis Solar Energy Project Docket Number 09-AFC-08). | relating to Cultural Resources for (California Energy Commission |
| 4. | It is my professional opinion that to valid and accurate with respect to | the attached prepared testimony is issues that it addresses. |
| 5. | | acts and conclusions related in the if called as a witness could testify |
| the foregoing declaration v | der penalty of perjury, under the law g is true and correct to the best of r was executed at <u>Sacran</u> <u>20</u> , 2010. | ny knowledge and that this |
| | | Jenn Pell |

Jenna Farrell

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OFKenneth Stein

- I, Kenneth Stein, declare as follows:
 - 1. I am presently employed by NextEra Energy Resourcess, LLC, as an Environmental and Permitting Manager.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Cultural Resources for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed in Ft. Lauderdale, FL on May 18, 2010.

Kenneth Stein

STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OFReid Farmer

- I, Reid Farmer, declare as follows:
 - 1. I am presently employed by Tetra Tech EC Inc., as a Principal Environmental Scientist.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Cultural Resources for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Denver, CO on May 18, 2010.

| Original sings of | |
|-------------------|--|
| - Original signed | |
| Reid Farmer | |

GENESIS SOLAR ENERGY PROJECT CULTURAL RESOURCES OPENING TESTIMONY

I. <u>Name</u>: Jenna Farrell, Reid Farmer, and Kenneth Stein

II. Purpose:

Our testimony addresses the subject of Cultural Resources associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

Jenna Farrell: I am presently employed at Tetra Tech EC, Inc, and have been for the past 10 years and am presently a Cultural Resource Specialist/Archaeologist with that organization. I have a Bachelor of Arts Degree in Anthropology and a minor in Native American Studies, and I have over 11 years of experience in the field of Cultural Resource Management/Archaeology. I prepared or assisted in the preparation of the Cultural Resource section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Reid Farmer: I am presently employed at Tetra Tech EC Inc., and have been for the past 2 years and am presently a Principal Environmental Scientist with that organization. I have an MA Degree in Anthropology and I have over 30 years of experience in the field of Archaeology. I prepared or assisted in the preparation of the Cultural Resources section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Kenneth Stein: I am presently employed at NextEra Energy Resources, and have been for the past 6 years and am presently an Environmental and Permitting Manager with that organization. I have a B.S Degree in Environmental Science and a Law Degree with a focus in Environmental Law and I have over 20 years of experience in the field of Environmental Permitting. I prepared or assisted in the preparation of the Cultural Resources section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these

statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

| Exhibit 1 | Application for Certification Vol I & II , dated August 2009, and docketed on August 31, 2009, Section 5.16. |
|------------|--|
| Exhibit 3 | Data Adequacy Supplement, dated October 2009, and docketed on October 12, 2009. |
| Exhibit 7 | Three Option Approach Letter (New Alternate Approach to Staff Review for Cultural Resources on Genesis Solar Energy Project), dated December 3, 2009, and docketed December 3, 2009. |
| Exhibit 8 | Selection of Cultural Resources Evaluation Approach, dated December 8, 2009, and docketed on December 8, 2009. |
| Exhibit 21 | Data Request Responses to Set 1B, (228 through 292), dated January 11, 2010, and docketed on January 11, 2010, Responses 228 through 292. |
| Exhibit 38 | Map of Class II & III Archeological Surveyed Areas, dated February 22, 2010, and docketed on February 23, 2010. |

V. Opinion and Conclusions

We have reviewed the Cultural Resource section of the Staff Assessment and defer our opinions until such time as the CEC Staff present the Conditions of Certification. In an attempt to assist the Committee and Staff we have included the following Proposed Conditions of Certification. The following Proposed Conditions of Certification were adapted from those found in the Beacon Solar Energy Project Staff Assessment and tailored specifically for the GSEP. Modifications are shown in bold and italics.

HISTORICAL RESOURCES MANAGEMENT PLAN

CUL-_ The Historical Resources Management Plan (HRMP) shall govern the implementation of the overarching program to reduce the effects of the proposed project on historical resources to less than significant. The preparation and implementation of the different elements of the historical resources management program, by the project owner, shall be the result of a number of protocols and consultations set out in this condition of certification and others below.

Prior to the start of any project -related ground disturbance (includes "preconstruction site mobilization," "construction ground disturbance," and "construction grading, boring and trenching," as defined in the General Conditions for this project), the project owner shall submit the HRMP, as prepared by or under the direction of the CRS, to the CPM for review and approval. The HRMP shall follow the content and organization of a similar document, the Cultural Resources Monitoring and Mitigation Plan, a draft model version of which will be provided by the CPM, as general guidance. The authors' name(s) shall appear on the title page of the HRMP. The HRMP shall also incorporate the final results of the geoarchaeology study for the proposed project into the appropriate elements of the HRMP. Implementation of the HRMP shall be the responsibility of the CRS and the project owner. Copies of the HRMP shall reside with the CRS, alternate CRS, each CRM, and the project owner's on-site construction manager. No ground disturbance shall occur prior to CPM approval of the HRMP, unless such activities are specifically approved by the CPM. The HRMP shall include, but not be limited to, the following elements:

Primacy of the Conditions of Certification

1. The statement in the introduction to the HRMP that "any discussion, summary, or paraphrasing of the Conditions of Certification in this HRMP is intended as general guidance and as an aid to the user in understanding the conditions and their implementation. The conditions, as written in the Commission Decision, shall supersede any summarization, description, or interpretation of the conditions in the HRMP. The Cultural Resources Conditions of Certification from the Commission Decision are contained in Appendix A."

Implementation of the Historical Resources Management Program

- 2. Specification of the implementation sequence and the estimated time frames needed to accomplish all historical resources management program tasks prior to and during construction_-related ground disturbance, and during those analysis phases of the management program that may occur subsequent to construction-related ground disturbance.
- 3. Identification of the person(s) expected to perform each of the historical resources management program tasks, their responsibilities, and the reporting

relationships between project construction management and the treatment and monitoring teams.

4. A statement from the project owner that the CRS shall have, for the duration of construction-related ground disturbance, access to equipment and supplies necessary for site mapping, photography, and recovery of any cultural resource materials that are found during such ground disturbance, where such materials cannot be treated prescriptively.

Historical Resources Management Program Research Design

5. A project area-specific research design that includes a discussion of archaeological research questions and testable hypotheses appropriate to the archaeological data sets known for the project area. The research design shall provide the broader context for and facilitate tiering down to the research design that the project owner shall prepare pursuant to **CUL-__**. The project area research design shall clearly articulate why it is in the public interest to address the research questions that it poses. That research design shall also develop a discussion of artifact and ecofact collection, retention, and disposal policies as related to the research questions in the research design.

Documentation and Curation Standards

- 6. A statement that all found cultural resources over 50 years old shall be recorded on Department of Parks and Recreation (DPR) 523 Series forms, and mapped and photographed. In addition, all artifacts and ecofacts retained as a result of the archaeological investigations (survey, testing, and data recovery) shall be curated in accordance with the California State Historical Resources Commission's *Guidelines for the Curation of Archaeological Collections*, into a retrievable storage collection in a public repository or museum.
- 7. A statement that the project owner shall pay all curation fees for artifacts and ecofacts recovered and for related documentation produced during cultural resources investigations conducted for the project. The project owner shall identify three possible curation facilities that could accept cultural resources materials resulting from project activities.
- 8. A description of the contents, the format, and the review and approval process for the CRR, which shall be prepared according to ARMR guidelines (COHP 1990).

Native American Participation

9. A description of the roles which Native American observers or monitors shall play in the implementation of the HRMP, including the procedures that shall govern the selection of such observers and monitors, and the authority and responsibility of each role.

Treatment and Management of Historical Resources

10. A protocol that articulates a treatment plan for the NRHP/CRHR-eligible historical refuse scatters identified in the Class III report: CA-RIV-9203H, 9204H, 9205/H, 9211H, 9213H, 9214H and 9228H. The treatment plan will address the in-field analysis and recordation of artifacts from these sites with particular emphasis on identifying sites related to the DTC/C-AMA Cultural Landscape.

Treatment and Management of Prehistoric Resources
11. A protocol that articulates a treatment plan for the NRHP/CRHR-eligible prehistoric sites identified in the Class III report: CA-RIV-9064, 9072, 9078, 9079, and 9227. The treatment plan at a minimum will address the gathering of data from these sites in view of their role in the Prehistoric Trails Network Cultural Landscape.

Construction Monitoring and Discovery

- 12. A Worker Environmental Awareness Program (WEAP) to guide the orientation of every new worker in the project area to cultural resources statutes and regulations, to the effects of the proposed project on cultural resources, to the management program that has been negotiated to address those effects, to the role of the workers in the management program, to the types of cultural resources in the project area and how to recognize them, and to the protocols that workers are to follow upon the discovery of different types of cultural resources. The structure and the details of the WEAP program are set out in **CUL-**_.
- 13. A description of the structure, and the review and approval process for the Monitoring and Discovery Plan.

Verification

Upon approval of the CRS proposed by the project owner, the CPM shall provide to the project owner, as general guidance, an electronic copy of the draft model Cultural Resources Monitoring and Mitigation Plan for the use of the CRS.

At least 30 days prior to the start of construction-related ground disturbance anywhere on the project site, the project owner shall submit the HRMP to the CPM for review and approval.

At least 30 days prior to the start of construction-related ground disturbance anywhere on the project site _a letter shall be provided to the CPM indicating that the project owner agrees to pay curation fees for any materials collected as a result of the archaeological investigations (survey, monitoring, testing, data recovery).

CONSTRUCTION MONITORING PROGRAM

CUL-__ The project owner shall ensure that the CRS, alternate CRS, or CRMs actively monitor, full time, all construction-related ground disturbance in the project area, to a depth of two feet below the present ground surface with the exception of areas where the landform Qoaf is exposed at the ground surface. The Qoaf landform is Pleistocene in age (Worley Parsons 2010: 11) and no buried cultural resources would be expected in that soil.

At least 30 days prior to the start of ground disturbance the project owner will provide a geological map to the CPM showing the areas of exposure of the Qoaf landform where construction monitoring will not be required. The geological map will be based on aerial photos that have been ground-truthed.

Where scrapers are used for excavation, full-time archaeological monitoring shall require one monitor to observe the placement of and inspect dumped material for every four monitors observing excavation. For excavation areas where scrapers are not used for excavation, one monitor shall both observe the location of active excavation and inspect the dumped material.

In the event that the CRS believes that the current level of monitoring is not appropriate in certain locations, a letter or e-mail detailing the justification for changing the level of monitoring shall be provided to the CPM for review and approval prior to any change in the level of monitoring.

The research design in the HRMP shall govern the collection, treatment, retention/disposal, and curation of any archaeological materials encountered.

A Native American monitor shall be obtained to monitor ground disturbance in areas where Native American artifacts may be discovered. Contact lists of interested Native Americans and guidelines for monitoring shall be obtained from the Native American Heritage Commission. Preference in selecting a monitor shall be given to Native Americans with traditional ties to the area that shall be monitored. If efforts to obtain the services of a qualified Native American monitor are unsuccessful, the project owner shall immediately inform the CPM. The CPM will either identify potential monitors or will allow ground disturbance to proceed without a Native American monitor.

On forms provided by the CPM, CRMs shall keep a daily log of any monitoring and other cultural resources activities and any instances of noncompliance with the Conditions and/or applicable LORS. Copies of the daily monitoring logs shall be provided by the CRS to the CPM, if requested by the CPM. From these logs, the CRS shall compile a monthly monitoring summary report to be included in the

MCR. If there are no monitoring activities, the summary report shall specify why monitoring has been suspended.

The CRS or alternate CRS shall report daily to the CPM on the status of the project's cultural resources-related activities, unless reducing or ending daily reporting is requested by the CRS and approved by the CPM.

In the event that the CRS believes that the current level of monitoring is not appropriate in certain locations, a letter or e-mail detailing the justification for changing the level of monitoring shall be provided to the CPM for review and approval prior to any change in the level of monitoring.

The CRS, at his or her discretion, or at the request of the CPM, may informally discuss cultural resources monitoring and mitigation activities with Energy Commission technical staff.

Cultural resources monitoring activities are the responsibility of the CRS. Any interference with monitoring activities, removal of a monitor from duties assigned by the CRS, or direction to a monitor to relocate monitoring activities by anyone other than the CRS shall be considered non-compliance with these Conditions.

Upon becoming aware of any incidents of non-compliance with the Conditions and/or applicable LORS, the CRS and/or the project owner shall notify the CPM by telephone or e-mail within 24 hours. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the Conditions. When the issue is resolved, the CRS shall write a report describing the issue, the resolution of the issue, and the effectiveness of the resolution measures. This report shall be provided in the next MCR for the review of the CPM.

<u>Verification:</u> At least 30 days prior to the start of ground disturbance anywhere on the project site the project owner shall submit the Monitoring and Discovery Plan to the CPM for review and approval. At least 30 days prior to the start of construction-related ground disturbance, the CPM will provide to the CRS an electronic copy of a form to be used as a daily monitoring log. Monthly, while monitoring is on-going, the project owner shall include in each MCR a copy of the monthly summary report of cultural resources-related monitoring prepared by the CRS and shall attach any new DPR 523A forms completed for finds treated prescriptively, as specified in the HRMP.

At least 24 hours prior to reducing or ending daily reporting, the project owner shall submit to the CPM, for review and approval, a letter or e-mail (or some other form of communication acceptable to the CPM) detailing the CRS's justification for reducing or ending daily reporting.

At least 24 hours prior to implementing a proposed change in monitoring level, documentation justifying the change shall be submitted to the CPM for review and approval.

No later than 30 days following the discovery of any Native American cultural materials, the project owner shall submit to the CPM copies of the information transmittal letters sent to the Chairpersons of the Native American tribes or groups who requested the information.

Within 15 days of receiving them, the project owner shall submit to the CPM copies of any comments or information provided by Native Americans in response to the project owner's transmittals of information.

INTERPRETIVE KIOSK AT WILEY'S WELL ROAD REST STOP

CUL-__ The project owner will design and construct an interpretive kiosk at the Wiley's Well Road rest stop. The kiosk will at a minimum include information on prehistoric settlement around Ford Dry Lake, the prehistoric trail network that connected sites in the area, and the use of the Ford Dry Lake/Chuckwalla Valley area for small unit training as part of the Desert Training Center during World War II. It is anticipated that contributions could be made by other solar developers in the region to support the construction and maintenance of the kiosk for educational and public outreach purposes.

Rationale: The highly visible prehistoric trails unique to the Mojave and Colorado Deserts occur in areas where recurrent foot traffic has compacted stones in the desert pavement. These trails provide a fertile source of information for study, not only how the trails linked sites across the landscape, but also for associated features that speak to ceremonial behavior: intentional pot drops. quartz smashes, spirit breaks, prayer circles, and geoglyphs. The GSEP site does not contain enough desert pavement for welldefined prehistoric trails to be visible. While information from elsewhere in the region indicates that sites in the region were linked by trails, there are no visible trail routes within the GSEP area of potential affect that could contribute to any trail network NRHP nomination initiative. Accordingly, there is no basis for assuming that the GSEP could have a significant impact on this particular cultural resource. Nevertheless, because the trail network is a unique type of cultural resource in the region, an interpretive kiosk will inform visitors about this interesting and unique type of cultural resource that isn't well known by the general public.

<u>Verification:</u> At least 30 days prior to commencement of construction-related ground disturbance the project owner will supply the CPM with a

draft design for the kiosk. The kiosk must be installed within 120 days after completing of Project construction.

CONTRIBUTION TO THE GENERAL PATTON MEMORIAL MUSEUM

CUL-__ The project owner will make a donation of \$15,000 to the General Patton Memorial Museum at Chiriaco Summit, California. The General Patton Memorial Museum is a 501c3 non-profit organized in association with the BLM as a repository for artifacts, history, and information on the Desert Training Center/California-Arizona Maneuver Area.

Rationale: Research indicates that the GSEP site area served as a training area for small unit tactics during the DTC/C-AMA period of 1942-44. As such the remains from this time period found on the GSEP site consist of a limited number of small scatters of ration cans and other small artifacts. This contrasts with the DTC/C-AMA sites encountered by other nearby projects that contain substantial remains reflecting their use for large unit encampments, logistical infrastructure, and for brigade-size and larger field exercises. Other projects may want to consider monetary support to the museum for research, educational and outreach purposes.

<u>Verification:</u> At least 30 days prior to commencement of construction-related ground disturbance the project owner will supply the CPM with evidence of the transfer of funds to the General Patton Memorial Museum.

Energy Resources Conservation and Development Commission

| In the Matter of: | DOCKET NO. 09-AFC-08 |
|--|--------------------------------|
| Application For Certification for the GENESIS SOLAR ENERGY PROJECT | DECLARATION OF GLEN T. KING |

I, Glen T. King declare as follows:

- 1. I am presently employed by NextEra Energy Resources, as an Environmental Specialist.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Hazardous Materials for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

| I declare under penalty of perju | ry, under the | e laws of the State of California, that |
|-----------------------------------|---------------|---|
| the foregoing is true and correct | t to the best | of my knowledge and that this |
| declaration was executed at | Boron | , CA on |
| zo may , 2010. | | |
| | | |

Glen T. King

Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 09-AFC-08

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DECLARATION OF P. Duane McCloud

I, P. Duane McCloud, declare as follows:

- 1. I am presently employed by NextEra Energy Resources, LLC., as a Lead Professional for Construction and Engineering.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to the Hazardous Materials for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, Florida on May 16, 2010.

P. Duane McCloud

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OFJared Foster

I, Jared Foster, declare as follows:

- 1. I am presently employed by WorleyParsons, as a Principal Mechanical Engineer.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Hazardous Materials for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on May 18, 2010.

Jared Foster

GENESIS SOLAR ENERGY PROJECT HAZARDOUS MATERIALS OPENING TESTIMONY

I. Name: Glen T. King, P. Duane McCloud, Jared Foster

II. <u>Purpose</u>:

Our testimony addresses the subject of the Hazardous Materials associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

Glen T. King: I am presently employed at SEGS III - IX, and have been for the past 19 years and am presently an Environmental Specialist with that organization. I have over 18 years of experience in the field of Hazardous Material. I prepared or assisted in the preparation of the Hazardous Material section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

P. Duane McCloud: I am presently employed at NextEra Energy Resources, LLC., and have been for the past 12 years and am presently a Lead Professional with that organization. I have a B.S. Degree in Chemical Engineering and I have over 28 years of experience in the field of power generation. I prepared or assisted in the preparation of the Hazardous Materials section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

<u>Jared Foster:</u> I am presently employed at WorleyParsons, and have been for the past 4 years and am presently a Principal Mechanical Engineer with that organization. I have a Bachelor Degree in Mechanical Engineering and I have over 8 years of experience in the field of Mechanical Engineering. I prepared or assisted in the preparation of the Hazardous Materials section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following

| Exhibit 1 | Application for Certification Vol I & II, dated August 2009, and docketed on August 31, 2009, Section 5.12. |
|------------|---|
| Exhibit 12 | Genesis Solar, LLC's Informational Hearing & Site Visit Presentation, dated, and docketed on December 18, 2009. |
| Exhibit 51 | Genesis Solar LLC's Proposed Conditions of Certification for Other Resource Areas, dated April 30, 2010, and docketed on May 3, 2010. |

exhibits in this proceeding.

V. Opinion and Conclusions

Genesis Solar LLC, (Genesis) has reviewed the analysis and all conditions of certifications embodied in the SA/DEIS, participated in workshops. Since Genesis is filing this testimony prior to Staff publishing its Revised Staff Assessment, we have included all areas where our opinion differs from the analysis or recommended Conditions of Certification contained in the SA/DEIS. However, since Genesis and Staff made substantial progress at the Staff Assessment Workshops, in an effort to clarify for the Committee the relatively few areas that may need Committee resolution, we have divided this testimony into the following categories.

- Category I Modifications to Conditions of Certification that were proposed by Genesis in its comments on the SA/DEIS and that were accepted by Staff at Staff Assessment Workshops
- Category II Modifications that Genesis and Staff agreed after discussion at Staff Assessment Workshops and would be included in the Revised Staff Assessment
- Category III Modifications to Conditions of Certification that Genesis has proposed that Staff has either rejected or needed additional time or information to consider and any disagreement with Staff's analysis and ultimate conclusions

After the Revised Staff Assessment is published Genesis remains confident that if any Hazardous Materials disputes exist, they will be confined in the third category only.

CATEGORY I GENESIS PROPOSED MODIFICATIONS AGREED BY STAFF

CONDITION OF CERTIFICATION HAZ-4

Typically, isolation valves associated with the solar field loop piping are manual valves and may not be practical to have as remote actuated valves. Loop piping is considered the smaller bore piping connecting the solar collector assemblies to the larger lateral header piping. This condition has been modified to allow design flexibility so the engineer can determine which type of valve is best for the application. Verification has been changed to 30 days to match requirements discussed in MECH-1, 2, and 3.

HAZ-4 The project owner shall place an adequate number of isolation valves in the

Heat transfer Fluid (HTF) pipe **system for section and** loops so as to be able to isolate a solar panel loop isolation in the event of a **fluid** leakef fluid. These valves shall be actuated **either** manually, and or remotely **depending on location and function** The engineering design drawings showing the number, location, and type of isolation valves shall be provided to the CPM for review and approval prior to the commencement of the solar array **piping** construction.

<u>Verification:</u> At least sixty *thirty* (6030) days prior to the commencement of solar array **piping** construction, the project owner shall provide the design drawings as described above to the CPM for review and approval.

At the Staff Assessment Workshop, Staff and Genesis agreed to provide analysis concerning the potential effects of loss of 1250 gallons of HTF. Based on this analysis, Staff is considering Genesis' proposed changes and will reflect the analysis in its Revised Staff Assessment.

CATEGORY II. GENESIS AND STAFF JOINT REVISED WORKSHOP MODIFICATIONS

CONDITION OF CERTIFICATION HAZ-6, sub-part 9

Genesis has made the following modifications to this Condition of Certification to reflect language agreed upon at the workshop

HAZ-6 The project owner shall also prepare a site-specific security plan for the commissioning and operational phases that will be available to the

CPM for review and approval. The project owner shall implement site security measures that address physical site security and hazardous materials storage. The level of security to be implemented shall not be less than that described below (as per NERC 2002).

- 9. additional measures to ensure adequate perimeter security consisting of either:
 - A. security guard(s) present 24 hours per day, 7 days per week; or
 - B. power plant personnel on site 24 hours per day, 7 days per week, *and* the CCTV able to view 100% of the entire *power block*solar-array-fenceline perimeter *or* breach detectors *or* on-site motion detectors along the entire solar array fenceline.
- 10. The project owner will also utilize a computer program/mechanism to prevent cyber threats.

CATEGORY III. DISPUTED CONDITIONS OF CERTIFICATION, ANALYSIS OR CONCLUSIONS

Genesis does not dispute any of the other Hazardous Materials Conditions of Certification proposed by Staff and agrees with the analysis and conclusions of the SA/DEIS

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF Richard B. Booth

- I, Richard B. Booth, declare as follows:
 - 1. I am presently employed by Tetra Tech EC, Inc., as a Supervising Project Manager.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Public Health for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Shingletown, CA on May 14, 2010.

Richard B. Booth

Rila DB. Both

GENESIS SOLAR ENERGY PROJECT PUBLIC HEALTH OPENING TESTIMONY

I. Name: Richard B. Booth

II. Purpose:

My testimony addresses the subject of Public Health associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

I am presently employed at Tetra Tech EC, Inc., and have been for the past 5 years and am presently a Supervising Project Manager with that organization. I have a BA Degree in Natural Sciences and I have over 22 years of experience in the field of Public Health. I prepared or assisted in the preparation of the Public Health section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

Exhibit 1 Application for Certification Vol I & II, dated August 2009, and docketed on August 31, 2009;

Section 5.15.

Exhibit 11 Data Requests Set 1A Responses (1 through 227), dated December 14, 2009, and docketed on December 15, 2009, Responses 137 through 142.

Genesis Solar LLC's Proposed Conditions of Certification for Other Resource Areas, dated

Exhibit 51 April 30, 2010, and docketed on May 3, 2010.

V. Opinion and Conclusions

Genesis Solar LLC, (Genesis) has reviewed the analysis and all conditions of certifications embodied in the SA/DEIS, participated in workshops. Since Genesis is filing this testimony prior to Staff publishing its Revised Staff Assessment, we have included all areas where our opinion differs from the analysis or recommended Conditions of Certification contained in the SA/DEIS. However, since Genesis and Staff made substantial progress at the Staff Assessment Workshops, in an effort to clarify for the Committee the relatively few areas that may need Committee resolution, we have divided this testimony into the following categories.

- Category I Modifications to Conditions of Certification that were proposed by Genesis in its comments on the SA/DEIS and that were accepted by Staff at Staff Assessment Workshops
- Category II Modifications that Genesis and Staff agreed after discussion at Staff Assessment Workshops and would be included in the Revised Staff Assessment
- Category III Modifications to Conditions of Certification that Genesis has proposed that Staff has either rejected or needed additional time or information to consider and any disagreement with Staff's analysis and ultimate conclusions

After the Revised Staff Assessment is published Genesis remains confident that if any Public Health disputes exist, they will be confined in the third category only.

CATEGORY I GENESIS PROPOSED MODIFICATIONS AGREED BY STAFF

Genesis did not receive feedback from Staff on its proposed modifications to conditions of certification prior to preparation of this testimony and therefore even though Genesis believes that Staff may agree with the proposed modifications, they have been included in Category III.

CATEGORY II. GENESIS AND STAFF JOINT REVISED WORKSHOP MODIFICATIONS

The subject of Public Health and Safety was not discussed during Staff Assessment Workshops and therefore there are no proposed modifications included in Category II.

CATEGORY III. DISPUTED CONDITIONS OF CERTIFICATION, ANALYSIS OR CONCLUSIONS

CONDITION OF CERTIFICATION PUBLIC HEALTH-1

Genesis intends to implement a Cooling Water Management Plant that is consistent with the Cooling Technology Institutes "Best Practices for Control of Legionella" guidelines. This is one of the two compliance options required in the SA/DEIS. The SA/DEIS also requires sampling and testing for the presence of Legionella bacteria, but this requirement is not consistent with the Cooling Technology Institute's (CTI's) "Best Practices for Control of Legionella". The CTI Legionella guideline referenced in the SA/DEIS specifically states that:

"Most professional and government agencies that have issued Legionella position statements and guidelines do not recommend testing for Legionella bacteria on a routine basis. These reasons derive from difficulties in interpreting Legionella test results and in using test results as a basis for control. Note the following aspects:

- An infectious dose level for Legionella has not been established and in any case (given variations in strain virulence and wide differences in individual susceptibility) the concept of a fixed infectious dose level may be misleading. Since no fixed 'danger' level can be assigned, it also follows that no specific level of the organism can be assigned as 'safe'.
- Legionella may be 'non-detectable' in bulk water samples collected on one day but can repopulate and be found within a few days. Legionella can be released from biofilms or from host life forms associated with these films. Legionella are reported to be capable of rapid recolonization of previously cleaned systems, especially if conducive conditions are present.
- Simple detection of the organism in a cooling system does not necessarily mean there is a risk of disease, in part because not all Legionella serogroups are associated with Legionellosis.
- Culture-based techniques used by testing labs to quantify Legionella have a 1- to 14 day turnaround for results. This period is to long for Legionella monitoring to serve as an effective tool for treatment control."

Since the CTI guideline indicates that Legionella testing cannot be used to reliably evaluate the public health risk of Legionellosis, Genesis requests that Condition of Certification **Public Health-1** be changed to read as follows:

Public Health-1

The Project owner shall develop and implement a Cooling Water Management Plan to ensure that the potential for bacterial growth in cooling water is kept to a minimum. The Plan shall be consistent with either staff's "Cooling Water Management Program Guidelines" or with the Cooling Technology Institute's "Best Practices for Control of Legionella" guidelinesbut in either case, the Plan must include sampling and testing for the presence of Legionella bacteria at least every six months. After two years of power plant operations, the Project owner may ask the CPM to re-evaluate and revise the Legionella bacteria testing requirement.

<u>Verification:</u> At least 60 days prior to the commencement of cooling tower operations, the Cooling Water Management Plan shall be provided to the CPM for review and approval.

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF Scott A Busa

- I, Scott A Busa, declare as follows:
 - 1. I am presently employed by NextEra Energy Resources, LLC, as a Director of Business Development.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Land Use for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, FL on May 18, 2010.

Scott A Busa

Desta Busa

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF MEG E. RUSSELL

I, MEG RUSSELL, declare as follows:

- 1. I am presently employed by NextEra Energy Resources, LLC., as a Project Director in Business Development.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Land Use for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, Florida on May 18, 2010.

Meg E. Russell

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF Andrea M Slusser

- I, Andrea M Slusser, declare as follows:
 - 1. I am presently employed by Tetra Tech, EC Inc, as a part time land use planner and visual resources specialist.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Land Use for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at _____, CA on May 18, 2010.

Andrea M Slusser

GENESIS SOLAR ENERGY PROJECT LAND USE OPENING TESTIMONY

I. <u>Name</u>: Scott A Busa, Meg E. Russell and Andrea M. Slusser

II. Purpose:

Our testimony addresses the subject of Land Use associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

Scott A. Busa: I am presently employed at NextEra Energy Resources, and have been for the past 21 years and am presently a Director with that organization. I have over 23 years of experience development, construction, and operation of Electrical Utilities and Power Generation. I prepared or assisted in the preparation of the Land Use section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Meg E. Russell: I am presently employed at NextEra Energy Resources, LLC., and have been for the past two years and am presently a Project Director with that organization. I have a Masters Degree in Business and I have over nine years of experience in the field of Project/Program Management. I prepared or assisted in the preparation of the Land Use section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Andrea M. Slusser: I am presently employed at Tetra Tech, EC Inc, and have been for the past 9 years and am presently a Land Use Planner and Visual Resources Specialist with that organization. I have a Bachelor of Science Degree in Natural Resources Planning and I have over 9 years of experience in the field of land use planning and NEPA. I prepared or assisted in the preparation of the Land Use and Visual Resources sections of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

Exhibit 1 Application for Certification Vol I & II, dated August 2009, and docketed on August 31, 2009,

Section 5.7

Exhibit 11 Data Requests Set 1A Responses (1 through 227), dated December 14, 2009, and docketed on December 15, 2009, Responses 137 through 142.

Report of Conversation Regarding Clarification of Land Use Data Responses (Between Tricia Bernhardt, Mike Monasmith, Negar Vahidi & Jacob Hawkins), dated December 28, 2009, and

docketed on December 30, 2009.

V. Opinion and Conclusions

Exhibit 15

We have reviewed the Land Use section of the Staff Assessment and agree that no Conditions of Certification are required and with the Land Use section that the Genesis Solar Energy Project will not result in significant impacts and will comply with all laws, ordinances, regulations and standards (LORS).

Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 09-AFC-08

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DECLARATION OFP. Duane McCloud

I, P. Duane McCloud, declare as follows:

- 1. I am presently employed by NextEra Energy Resources, LLC., as a Lead Professional for Construction and Engineering.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to the Noise and Vibration for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, Florida on May 16, 2010.

P. Duane McCloud

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DECLARATION OFJared Foster

DOCKET NO. 09-AFC-08

- I, Jared Foster, declare as follows:
 - 1. I am presently employed by WorleyParsons, as a Principal Mechanical Engineer.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Noise and Vibration for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on May 18, 2010.

Jared Foster

GENESIS SOLAR ENERGY PROJECT NOISE AND VIBRATION OPENING TESTIMONY

I. Name: P. Duane McCloud and Jared Foster

II. Purpose:

Our testimony addresses the subject of the Noise and Vibration associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

P. Duane McCloud: I am presently employed at NextEra Energy Resources, LLC., and have been for the past 12 years and am presently a Lead Professional with that organization. I have a B.S. Degree in Chemical Engineering and I have over 28 years of experience in the field of power generation. I prepared or assisted in the preparation of the Noise and Vibration section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

<u>Jared Foster:</u> I am presently employed at WorleyParsons, and have been for the past 4 years and am presently a Principal Mechanical Engineer with that organization. I have a Bachelor Degree in Mechanical Engineering and I have over 8 years of experience in the field of Mechanical Engineering. I prepared or assisted in the preparation of the Noise and Vibration section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

Exhibit 1

Application for Certification Vol I & II, dated
August 2009, and docketed on August 31, 2009,
Section 5.9.

Genesis Solar, LLC's Informational Hearing &
Site Visit Presentation, dated ______, and
docketed on December 18, 2009.

Genesis Solar LLC's Proposed Conditions of
Certification for Other Resource Areas, dated
April 30, 2010, and docketed on May 3, 2010.

V. Opinion and Conclusions

Genesis Solar LLC, (Genesis) has reviewed the analysis and all conditions of certifications embodied in the SA/DEIS and has participated in workshops. Since Genesis is filing this testimony prior to Staff publishing its Revised Staff Assessment, we have included all areas where our opinion differs from the analysis or recommended Conditions of Certification contained in the SA/DEIS. However, since Genesis and Staff made substantial progress at the Staff Assessment Workshops, in an effort to clarify for the Committee the relatively few areas that may need Committee resolution, we have divided this testimony into the following categories.

- Category I Modifications to Conditions of Certification that were proposed by Genesis in its comments on the SA/DEIS and that were accepted by Staff at Staff Assessment Workshops
- Category II Modifications that Genesis and Staff agreed after discussion at Staff Assessment Workshops and would be included in the Revised Staff Assessment
- Category III Modifications to Conditions of Certification that Genesis has proposed that Staff has either rejected or needed additional time or information to consider and any disagreement with Staff's analysis and ultimate conclusions

After the Revised Staff Assessment is published Genesis remains confident that if any Noise disputes exist, they will be confined in the third category only.

CATEGORY I GENESIS PROPOSED MODIFICATIONS AGREED BY STAFF

Genesis did not receive feedback from Staff on its proposed modification to conditions of certification prior to preparation of this testimony and therefore even though Genesis believes that Staff may agree with the proposed modifications, they have been included in Category III.

CATEGORY II. GENESIS AND STAFF JOINT REVISED WORKSHOP MODIFICATIONS

The subject of Noise was not discussed during Staff Assessment Workshops and therefore there are no proposed modifications included in Category II.

CATEGORY III. DISPUTED CONDITIONS OF CERTIFICATION, ANALYSIS OR CONCLUSIONS

CONDITION OF CERTIFICATION NOISE-1

Genesis requests that Condition of Certification **NOISE-1** be modified to reflect that because the project site is completely isolated in the desert away from any residents, a noise notice posted at the job site would not be seen by a passerby. I-10 is the closest infrastructure to the project site, approximately 4 miles away at its closest location. No noise will be heard; therefore there is no reason to have a telephone hot line posted.

NOISE-1 At least 15 days prior to the start of ground disturbance, the project owner shall notify all residents within two miles of the project site boundaries and one-half mile of linears, by mail or other effective means, of the commencement of project construction. At the same time, the project owner shall establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and operation of the project and include that telephone number in the above notice. If the telephone is not staffed 24 hours per day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at the project site during construction in a manner visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.

<u>Verification:</u> Prior to ground disturbance, the project owner shall transmit to the Compliance Project Manager (CPM) a statement, signed by the project owner's project manager, stating that the above notification has been performed and describing the method of that notification, verifying that the telephone number has been established and posted at the site, and giving that telephone number.

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF Scott A Busa

- I, Scott A Busa, declare as follows:
 - 1. I am presently employed by NextEra Energy Resources, LLC, as a Director of Business Development.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Socioeconomics for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, FL on May 18, 2010.

Scott A Rusa

GENESIS SOLAR ENERGY PROJECT SOCIOECONOMICS OPENING TESTIMONY

I. Name: Scott A Busa

II. Purpose:

My testimony addresses the subject of Socioeconomics associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

I am presently employed at NextEra Energy Resources, and have been for the past 21 years and am presently a Director with that organization. I have over 23 years of experience development, construction, and operation of Electrical Utilities and Power Generation. I prepared or assisted in the preparation of the Socioeconomics section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of my knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. I make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, I am sponsoring the following exhibits in this proceeding.

| Exhibit 1 | Application for Certification Vol I & II , dated August 2009, and docketed on August 31, 2009, Sections 5.8. |
|------------|---|
| Exhibit 12 | Genesis Solar, LLC's Informational Hearing & Site Visit Presentation, dated, and docketed on December 18, 2009. |

V. Opinion and Conclusions

I have reviewed the Socioeconomics and Environmental Justice section of the Staff Assessment and agree that no Conditions of Certification are needed as the Project will not result in significant impacts and will comply with all laws, ordinances, regulations and standards (LORS).

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF MICHAEL TIETZE, PG, CEG

- I, Michael Tietze, declare as follows:
 - 1. I am presently employed by WorleyParsons, as a Senior Hydrogeologist and Location Manager.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Soil and Water for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Folsom, CA on May 17, 2010.

Michael Tietze

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF BOB ANDERS, P.E.

I, Bob Anders, declare as follows:

- 1. I am presently employed by WorleyParsons, as a Senior Supervising Civil Engineer and Project Manager.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Soil and Water for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Folsom, CA on May 17, 2010.

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Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF Miles Kenney, Ph.D.

I, Miles Kenney, declare as follows:

- 1. I am presently employed by WorleyParsons Group, as a Senior Project Geologist.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Soil and Water Resources (as related to the geomorphology of the aeolian sand system) for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Encinitas, CA on May 18, 2010.

Miles D. Kenney

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF Scott A Busa

- I, Scott A Busa, declare as follows:
 - 1. I am presently employed by NextEra Energy Resources, LLC, as a Director of Business Development.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Soil and Water Resources for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, FL on May 18, 2010.

Scott A Busa

Jate Buse

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF

Kenneth Stein

- I, Kenneth Stein, declare as follows:
 - 1. I am presently employed by NextEra Energy Resourcess, LLC, as an Environmental and Permitting Manager.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Soil and Water Resources for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed in Ft. Lauderdale, FL on May 18, 2010.

Kếnneth Stein

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OFJared Foster

I, Jared Foster, declare as follows:

- 1. I am presently employed by WorleyParsons, as a Principal Mechanical Engineer.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Soil and Water Resources for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on May 18, 2010.

Jared Foster

Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 09-AFC-08

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DECLARATION OF
P. Duane McCloud

I, P. Duane McCloud, declare as follows:

- 1. I am presently employed by NextEra Energy Resources, LLC., as a Lead Professional for Construction and Engineering.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to the Soil and Water Resources for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, Florida on May 16, 2010.

P. Duane McCloud

GENESIS SOLAR ENERGY PROJECT SOIL & WATER RESOURCES OPENING TESTIMONY

I. Name:

Michael Tietze, P. Duane McCloud, Bob Anders, Miles Kenney, Scott A. Busa, Kenneth Stein and Jared Foster

II. Purpose:

Our testimony addresses the subject of Soil and Water associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

<u>Michael Tietze:</u> I am presently employed at WorleyParsons, and have been for the past five years and am presently a Senior Hydrogeologist and Location Manager with that organization. I have a Bachelors of Science Degree in Geology and I have over 25 years of experience in the fields of hydrogeology and engineering geology. I prepared or assisted in the preparation of the Soil and Water section and the Geology and Paleontology section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

P. Duane McCloud: I am presently employed at NextEra Energy Resources, LLC., and have been for the past 12 years and am presently a Lead Professional with that organization. I have a B.S. Degree in Chemical Engineering and I have over 28 years of experience in the field of power generation. I prepared or assisted in the preparation of the Soil and Water Resources section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

<u>Bob Anders:</u> I am presently employed at WorleyParsons, and have been for the past 2 years and am presently a Sr. Civil Engineer/Project manager with that organization. I have an Engineering Degree in Civil Engineering and I have over 25 years of experience in the field of Civil Engineering. I prepared or assisted in the preparation of the Soil and Water section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Miles Kenney: I am presently employed at WorleyParsons Group, and have been for the past 7 months and am presently a senior project geologist with that organization. I have a Ph.D. Degree in Geology and I have over 20 years of experience in the field of geology with an emphasis

on Quaternary Geology of desert landscapes. I prepared or assisted in the preparation of the Geomorphic evaluation of the Aeolian sand system report as supplement to the Biology and Soil and Water sections of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

<u>Scott A. Busa:</u> I am presently employed at NextEra Energy Resources, and have been for the past 21 years and am presently a Director with that organization. I have over 23 years of experience development, construction, and operation of Electrical Utilities and Power Generation. I prepared or assisted in the preparation of the Soil and Water Resources section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Kenneth Stein: I am presently employed at NextEra Energy Resources, and have been for the past 6 years and am presently an Environmental and Permitting Manager with that organization. I have a B.S Degree in Environmental Science and a Law Degree with a focus in Environmental Law and I have over 20 years of experience in the field of Environmental Permitting. I prepared or assisted in the preparation of the Soil and Water Resources section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

<u>Jared Foster:</u> I am presently employed at WorleyParsons, and have been for the past 4 years and am presently a Principal Mechanical Engineer with that organization. I have a Bachelor Degree in Mechanical Engineering and I have over 8 years of experience in the field of Mechanical Engineering. I prepared or assisted in the preparation of the Soil and Water Resources section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

| Exhibit 1 | Application for Certification Vol I & II , dated August 2009, and docketed on August 31, 2009, Sections 5.4, 5.6, and Appendices F & H. |
|------------|--|
| Exhibit 3 | Data Adequacy Supplement, dated October 2009, and docketed on October 12, 2009. |
| Exhibit 4 | Data Adequacy Supplement 1A, dated October 26, 2009, and docketed on October 27, 2009. |
| Exhibit 10 | Groundwater Model Sensitivity Analysis, dated December 9, 2009, and docketed on December 15, 2009. |
| Exhibit 11 | Data Requests Set 1A Responses (1 through 227), dated December 14, 2009, and docketed on December 15, 2009, Responses (143 through 214). |
| Exhibit 12 | Genesis Solar, LLC's Informational Hearing & Site Visit Presentation, dated, and docketed on December 18, 2009. |
| Exhibit 13 | Test Well #2 Ford Dry Lake Supplemental Investigation, dated December 18, 2009, and docketed on December 21, 2009. |
| Exhibit 14 | Low Resolution Scan of the Borehole Logs for OBS-1, OBS-2, TW-1, AND TW-2, dated, and docketed on December 23, 2009. |
| Exhibit 16 | Notification of Lake of Streambed Alteration, dated December 30, 2009, and docketed on December 31, 2009. |
| Exhibit 18 | Genesis Solar, LLC's Cumulative Impact Analysis, dated December 31, 2010, and docketed on January 4, 2010. |
| Exhibit 20 | Supplement to the Genesis Surface Drainage Data Requests, dated January 4, 2010, and docketed on January 11, 2010. |
| Exhibit 22 | Report of Conversation Regarding Surface Drainage Data Requests (Between Mike Daly and Bob Anders), dated January 6, 2010, and docketed on January 12, 2010. |
| Exhibit 25 | Storm Water Flood Routing Calculation Report, dated January 15, 2010, and docketed on January 15, 2010. |

| Exhibit 27 | AFC Supplemental Information Re: Groundwater Resources Investigation, dated January 13, 2010 and docketed on January 19, 2010. |
|------------|--|
| Exhibit 28 | FLO -2D Model Run , dated January 2010, and docketed on January 20, 2010. |
| Exhibit 29 | Preliminary Report of Ancient Shorelines in Ford Dry Lake, dated January 19, 2010, and docketed on January 25, 2010. |
| Exhibit 33 | Applicant's Draft Channel Maintenance Plan, dated January 2, 2010, and docketed on February 4, 2010. |
| Exhibit 35 | Aeolian Transport Evaluation & Ancient Shoreline Delineation Report, dated February 5, 2010, and docketed on February 10, 2010. |
| Exhibit 36 | Report of Conversation Regarding Genesis Surface Drainage DR (Between Mike Daly, Bob Anders & Dipti Sheth), dated February 9, 2010, and docketed on February 11, 2010. |
| Exhibit 43 | Genesis Solar LLC's Supplemental Groundwater Resources Investigation, dated March 10, 2010, and docketed on March 16, 2010. |
| Exhibit 48 | Genesis Solar LLC's Data Responses to CURE's Data Request Set 2 (1 through 9), dated April 28, 2010, and docketed on April 28, 2010. |
| Exhibit 49 | Genesis Solar LLC's Proposed Soil & Water Conditions of Certification, dated March 2010, and docketed on April 29, 2010. |
| Exhibit 52 | Genesis Solar LLC's Data Responses to CURE's Data Request Set 3, (1 through 2), dated May 2010, and docketed on May 3, 2010. |
| | |

V. Opinion and Conclusions

Genesis Solar LLC, (Genesis) has reviewed the analysis and all conditions of certifications embodied in the SA/DEIS, participated in workshops. Since Genesis is filing this testimony prior to Staff publishing its Revised Staff Assessment, we have included all areas where our opinion differs from the analysis or recommended Conditions of Certification contained in the SA/DEIS. However, since Genesis and Staff made substantial progress at the Staff Assessment Workshops, in an effort to clarify for the Committee the relatively few areas that

may need Committee resolution, we have divided this testimony into the following categories.

- Category I Modifications to Conditions of Certification that were proposed by Genesis in its comments on the SA/DEIS and that were accepted by Staff at Staff Assessment Workshops
- Category II Modifications that Genesis and Staff agreed after discussion at Staff Assessment Workshops and would be included in the Revised Staff Assessment
- Category III Modifications to Conditions of Certification that Genesis has proposed that Staff has either rejected or needed additional time or information to consider and any disagreement with Staff's analysis and ultimate conclusions

After the Revised Staff Assessment is published Genesis remains confident that if any Soil & Water Resources disputes exist, they will be confined in the third category only.

CATEGORY I GENESIS PROPOSED MODIFICATIONS AGREED BY STAFF

CONDITION OF CERTIFICATION SOIL&WATER-1

Genesis and Staff agreed to the following modifications to this Condition of Certification.

SOIL&WATER-1 Prior to site mobilization, the Project owner shall obtain both the BLM's Authorized Officer (AO) and Compliance Project Manager (CPM) approval of the Drainage Erosion and Sedimentation Control Plan (DESCP) for managing stormwater during Project construction and operations as normally administered by the County of Riverside. The DESCP must ensure proper protection of water quality and soil resources, demonstrate no increase in off-site flooding potential, include provisions for sediment and stormwater retention from both the power block, solar fields and transmission right of way to meet any Riverside County requirements, address exposed soil treatments in the solar fields for both road and non-road surfaces, and identify all monitoring and maintenance activities. The DESCP shall contain, at minimum, the elements presented below that outline site management activities and erosion and sediment-control BMPs to be implemented during site

- mobilization, excavation, construction, and post construction (operating) activities.
- A. Vicinity Map A map(s), at a minimum scale 1 inch=5100 feet, shall be provided indicating the location of all Project elements (construction sites, laydown area, pipelines) with depictions of all significant geographic features including swales, storm drains, and sensitive areas.
- B. Site Delineation All areas subject to soil disturbance for the proposed Project (Project phases, laydown area, all linear facilities, landscaping areas, and any other Project elements) shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, pipelines, roads, and drainage facilities.
- C. Watercourses and Critical Areas The DESCP shall show the location of all nearby watercourses including swales, storm drains, and drainage ditches. It shall indicate the proximity of those features to the proposed Project construction, laydown, and landscape areas and all transmission and pipeline construction corridors.
 - a. The DESCP shall describe how the project will avoid or minimize impacts to Palen-McCoy Valley sand corridor,
 - b. All proposed linear features (with the exception of Power Pylons) shall be constructed flush with the surrounding ground surface and without ground level obstructions.
- D. Drainage Map The DESCP shall provide a topographic site map(s), at a minimum scale of 1 inch=2400 feet, showing existing, interim, and proposed drainage swales and drainage systems and drainage-area boundaries. On the map, spot elevations are required where relatively flat conditions exist. The spot elevations and contours shall be extended off site for a minimum distance of 100 feet.
- E. Drainage of Project Site Narrative The DESCP shall include a narrative of the drainage measures necessary to protect the site and potentially affected soil and water resources within the drainage downstream of the site. The narrative shall include the summary pages from the hydraulic analysis prepared by a professional engineer and erosion control specialist. The narrative shall state the watershed size(s) in acres that was used in the calculation of drainage features.

- F. Clearing and Grading Plans The DESCP shall provide a delineation of all areas to be cleared of vegetation and areas to be preserved. The plan shall provide elevations, slopes, locations, and extent of all proposed grading as shown by contours, cross sections, or other means. The locations of any disposal areas, fills, or other special features shall also be shown. Existing and proposed topography shall be illustrated by tying in proposed contours with existing topography.
- G. Clearing and Grading Narrative The DESCP shall include a table with the estimated quantities of material excavated or filled for the site and all Project elements (Project site, laydown area, transmission and pipeline corridors, roadways, and bridges) whether such excavation or fill is temporary or permanent, and the amount of such material to be imported or exported.
- H. Soil Wind and Water Erosion Control The plan shall address exposed soil treatments to be used during construction and operation of the proposed Project for both road and non-road surfaces including specifically identifying all chemical based dust palliatives, soil bonding, and weighting agents appropriate for use at the proposed Project site that would not cause adverse effects to vegetation. BMPs shall include measures designed to prevent wind and water erosion including application of chemical dust palliatives after rough grading to limit water use. All dust palliatives, soil binders, and weighting agents shall be approved by both the AO and CPM prior to use.
- I. Best Management Practices Plan The DESCP shall identify on the topographic site map(s) the location of the site specific BMPs to be employed during each phase of construction (initial grading, Project element excavation and construction, and final grading/stabilization). BMPs shall include measures designed to control dust, stabilize construction access roads and entrances, and control storm water runoff and sediment transport.
- J. Best Management Practices Narrative The DESCP shall show the location (as identified in (I) above), timing, and maintenance schedule of all erosion- and sediment-control BMPs to be used prior to initial grading, during all Project element (site, pipelines) excavations and construction, final grading/stabilization, and operation. Separate BMP implementation schedules shall be provided for each Project

element for each phase of construction. The maintenance schedule shall include post-construction maintenance of structural-control BMPs, or a statement provided about when such information would be available.

- K. Project Schedule The DESCP shall identify on the topographic site map the location of the site-specific BMPs to be employed during each phase of construction (initial grading, Project element construction, and final grading/stabilization). Separate BMP implementation schedules shall be provided for each Project element for each phase of construction.
- L. Erosion Control Drawings The erosion-control drawings and narrative shall be designed, stamped and sealed by a professional engineer or erosion control specialist.
- M. Agency Comments The DESCP shall include copies of recommendations, conditions, and provisions from the County of Riverside, California Department of Fish and Game (CDFG), and CRBRWQCB.
- N. Monitoring Plan: Monitoring activities shall include routine measurement of the volume of accumulated sediment in the onsite drainage ditches, and storm water diversions. The monitoring plan shall be part of the Channel Monitoring and Maintenance Plan, SOIL&WATER-13.

<u>Verification:</u> No later than 390 days prior to start of site mobilization, the Project owner shall submit a copy of the final DESCP to the County of Riverside, the CRBRWQCB, and to both the AO and CPM for review and comment and to the County of Riverside and the CRBRWQB if required... No later than 60 days prior to start of site mobilization, the Project owner shall submit the DESCP with the County's and CRBRWQCB's comments to the both the AO and CPM for review and approval. Both the AO and CPM shall consider comments if received by the county and CRBRWQCB before approval of the DESCP.

The DESCP shall be consistent with the grading and drainage plan as required by Condition of Certification CIVIL-1, and relevant portions of the DESCP shall clearly show approval by the chief building official. The DESCP shall be a separate plan from the SWPPP developed in conjunction with any NPDES permit for Construction Activity. The Project owner shall provide in the monthly compliance report with a narrative on the effectiveness of the drainage, erosion, and sediment-control measures and the

results of monitoring and maintenance activities. Once operational, the Project owner shall update and maintain the DESCP for the life of the Project and shall provide in the annual compliance report information on the results of monitoring and maintenance activities.

CONDITION OF CERTIFICATION SOIL&WATER-2

Genesis and Staff agreed to the following modifications to the Verification of this Condition of Certification.

<u>Verification:</u> At least *3*60 days prior to site mobilization, the Project owner shall submit to both the AO and CPM a copy of the final construction SWPPP for review and approval prior to site mobilization. The Project owner shall retain a copy at the Project site. The Project owner shall submit copies to the both the AO and CPM all correspondence between the Project owner and the CRBRWQCB regarding the NPDES permit for the discharge of stormwater associated with construction activity within 10 days of its receipt or submittal. Copies of correspondence shall include the notice of intent sent to the SWRCB, and the SWRCB confirmation letter indicating receipt and acceptance of the notice of intent.

CONDITION OF CERTIFICATION SOIL&WATER-3

Genesis and Staff agree to the following modifications to a portion of this Condition of Certification.

SOIL&WATER-3 The Project owner proposes to construct and operate up to two_or more onsite groundwater production wells and additional backup wells that produce water from the CVGB. The Project owner shall ensure that the wells are completed in accordance with all applicable state and local water well construction permits (see C.9.9.2) and requirements. Prior to initiation of well construction activities, the Project owner shall submit for review and comment a well construction packet to the County of Riverside and fees normally required for the county's well permit, with copies to both the AO and CPM. The Project shall not construct a well or extract and use groundwater until both the AO and CPM provide approval to construct and operate the well.

CONDITION OF CERTIFICATION SOIL&WATER-4

Genesis and Staff agree to the following modifications to this Condition of Certification.

SOIL&WATER-4 The Project owner proposes to use groundwater for water supply during construction and during operation. The proposed Project's use of groundwater during construction shall not exceed an annual average of 1,368 afy during the entire 37 months of construction period(X MG) and an annual average of 16051,644 afy during operation for wet cooling and 202 afy for dry cooling. Water quality used for project construction and operation will be reported in accordance with Condition of Certification SOIL&WATER-20 to ensure compliance with this condition.

Prior to the use of groundwater for construction, the Project owner shall install and maintain metering devices as part of the water supply and distribution system to document Project water use and to monitor and record in gallons per day the total volume(s) of water supplied to the Project from this water source. The metering devices shall be operational for the life of the Project.

<u>Verification</u>: At least *thirty* sixty (3060) days prior to the start of construction of the proposed Project, the Project owner shall submit to both the AO and CPM a copy of evidence that metering devices have been installed and are operational.

Beginning six (6) months after the start of construction, the Project owner shall prepare a semi-annual summary of amount of water used for construction purposes. The summary shall include the monthly range and monthly average of daily water usage in gallons per day.

CONDITION OF CERTIFICATION SOIL&WATER-10

Genesis and Staff agreed to the following modifications to a portion of this Condition of Certification.

SOIL&WATER-10 All collector and conveyance channels shall be constructed consistent with Riverside County Flood Control and Water Conservation District (RCFCWCD) guidelines where applicable. Deviation from those guidelines should be documented in the Project drainage report along with justification. Grade control structures shall be utilized where needed to meet channel velocity and Froude number requirements. Channels shall be sized along discreet sections based on the results of the

detailed FLO-2D analysis described in **SOIL&WATER-9**. All grade control and drop structures shall have adequate toe-down to account for the design drop plus two additional feet to account for potential downcutting of the channel over time.

Channel confluence design must be given special consideration, especially as the preliminary Grading and Drainage Plans show 90 degree angles of confluence at nearly all locations. The issues of confluence hydraulics and potential scour shall be specifically addressed in the revised Drainage Report.

Offsite flows shall discharge directly into collector channels following the natural drainage patterns. The Project owner shall also flatten constructed channel side slopes at a 4:1 ratio at all locations where adequate space exists and in no cases are the slopes to be steeper than 3:1 along reaches requiring soil cement. At slopes of 3:1, soil cement shall be placed in horizontal lifts.

CONDITION OF CERTIFICATION SOIL&WATER-13

Genesis and Staff agree to the following modifications to this Condition of Certification.

- SOIL&WATER-13 The Project owner shall develop and implement a Channel Maintenance Program that provides long-term guidance to implement routine channel maintenance projects and comply with conditions of certification in a feasible and environmentally-sensitive manner. The Channel Maintenance Program will be a process and policy document prepared by the Project owner, reviewed by both the AO and CPM. The Channel Maintenance Program shall include the following:
 - A. Purpose and Objectives Eestablishes the main goals of the Program, of indefinite length, to maintain the diversion channel to meet its original design to provide flood protection, support GSEP mitigation, protect wildlife habitat and movement/ migration, and maintain groundwater recharge.
 - **B.** Application and Use The channel maintenance work area is defined as the GSEP engineered channel,

typically extending to the top of bank, include access roads, and any adjacent property that GSEP owns or holds an easement for access and maintenance. The Program would include all channel maintenance as needed to protect the GSEP facilities and downstream property owners.

C. Channel Maintenance Activities

- 1. **Sediment Removal** sediment is removed when it: (1) reduces the diversion channel effective flood capacity, to less than the design discharge, (2) prevents appurtenant hydraulic structures from functioning as intended, and (3) becomes a permanent, non-erodible barrier to instream flows.
- Vegetation Management manage vegetation in and adjacent to the diversion channel to maintain the biological functions and values proposed in the mitigation. Vegetation management shall include control of invasive or nonnative vegetation as prescribed in Condition of Certification BIO-14.
- 3. Bank Protection and Grade Control Repairs –
 Bank protection and grade control structure repairs
 involve any action by the Project owner to repair
 eroding banks, incising toes, scoured channel
 beds, as well as preventative erosion protection.
 The Project owner would implement instream
 repairs when the problem: (1) causes or could
 cause significant damage to GSEP; adjacent
 property, or the structural elements of the diversion
 channel; (2) is a public safety concern; (3)
 negatively affects groundwater recharge; or (4)
 negatively affects the mitigation vegetation, habitat,
 or species of concern.
- 4. Routine Channel Maintenance trash removal and associated debris to maintain channel design capacity; repair and installation of fences, gates and signs; grading and other repairs to restore the original contour of access roads and levees (if applicable); and removal of flow obstructions at GSEP storm drain outfalls.
- 5. **Channel Maintenance Program** Exclusions including: emergency repair and CIP.

D. Related Programmatic Documentation – both the AO and CPM will review and approve the Channel Maintenance Program programmatic documentation. Maintenance activities shall comply with the stream alteration agreement provisions and requirements for channel maintenance activities consistent with California's endangered species protection regulations and other applicable regulations.

E. Channel Maintenance Process Overview

- Program Development and Documentation –
 This documentation provides the permitting
 requirements for channel maintenance work in
 accordance with the conditions of certification for
 individual routine maintenance of the engineered
 channel without having to perform separate
 CEQA/NEPA review or obtain permits.
- 2. Maintenance Guidelines based on two concepts: (1) the maintenance standard and (2) the acceptable maintenance condition, and applies to sediment removal, vegetation management, trash and debris collection, blockage removal, fence repairs, and access road maintenance.
- 3. Implementation Sets Maintenance Guidelines for vegetation and sediment management. GSEP's vegetation management activities are established in Condition of Certification BIO-14. Maintenance Guidelines for sediment removal provide information on the allowable depth of sediment for the engineered channel that would continue to provide design discharge protection.
- **4.** Reporting both the AO and CPM requires the following reports to be submitted each year as part of the Annual Compliance Report:
 - a. Channel Maintenance Work Plan Describes the planned "major" maintenance activities and extent of work to be accomplished; and
 - b. Channel Maintenance Program Annual Report Specifies which maintenance activities were completed during the year including type of work, location, and measure of the activity (e.g. cubic yards of sediment removed).

- c. A report describing "Lessons Learned" to evaluate the effectiveness of both resource protection and maintenance methods used throughout the year.
- F. Resource Protection Policies establishes policies to ensure that resources would be protected to the fullest extent feasible during routine channel maintenance activities. Policies would be developed to guide decision-making for channel maintenance activities. BMPs shall be developed to implement these policies.

<u>Verification:</u> At least 60 days prior to the start of any project-related_site-disturbance-activities (not including linears), the Project owner shall coordinate with both the AO and CPM to develop the Channel Maintenance Program. The Project owner shall submit two copies of the programmatic documentation, describing the proposed Channel Maintenance Program, to the both the AO and CPM (for review and approval). The Project Owner shall provide written notification that they plan to adopt and implement the measures identified in the approved Channel Maintenance Program. The Project owner shall:

- Supervise the implementation of a Channel Maintenance Program in accordance with conditions of certification;
- Ensure the GSEP Construction and Operation Managers receive training on the Channel Maintenance Program;
- As part of the GSEP Annual Compliance Report to the both the AO and CPM, submit a Channel Maintenance Program Annual Report specifying which maintenance activities were completed during the year including type of work, location, and measure of the activity (e.g. cubic yards of sediment removed).

CONDITION OF CERTIFICATION SOIL&WATER-20

Genesis and Staff agreed to the following modifications to this Condition of Certification.

SOIL&WATER-20 The project owner shall submit a Groundwater Quality Monitoring and Reporting Plan to the CPM for review and approval. The Groundwater Quality Monitoring and Reporting Plan shall provide a description of the methodology for monitoring background and site groundwater levels and quality. The sampling required for the water quality monitoring program shall be implemented during groundwater level monitoring

events and using the well identified to comply with Condition of Certification Soil & Water-5. Prior to project construction, monitoring shall commence to establish pre-construction base-line-groundwater quality level conditions in the well proposed for the program and shall include pre-construction, construction, and project operation water use. A water quality baseline and groundwater level baseline shall be established for any existing and newly installed well on the ROW. The primary objectives for the water quality monitoring is to ensure the project does not degrade identify potential changes in the existing water quality of the proposed water supply resulting from Project pumping, if any, in concert with Condition of Certification SOIL&WATER-5, establish pre-construction and project related groundwater quality and groundwater elevation levels that can be quantitatively compared against observed and simulated levels near the project pumping well and near potentially impacted existing wells, and to avoid, minimize, or mitigate significant impacts or degradation to sensitive receptors (springs and groundwaterdependent vegetation, and groundwater supply users)-.

Verification: The project owner shall complete the following:

- 1. At least six (6) weeks prior to construction, a Groundwater Level and Quality Monitoring and Reporting Plan shall be submitted to the BLM AO and CPM for review and approval before completion of Condition of Certification SOIL&WATER-3. The Plan shall include a scaled map showing the site and vicinity. existing well locations, and proposed monitoring locations (both existing wells and new monitoring wells proposed for construction). Additional monitoring wells to be installed include wells required under Waste Discharge Requirements issued by the RWQCB for the evaporation ponds and land treatment unit proposed for the Project. The map shall also include relevant natural and man-made features (existing and proposed as part of this project). The plan also shall provide: (1) well construction information and borehole lithology for each existing well proposed for use as a monitoring well; (2) description of proposed drilling and well installation methods; (3) proposed monitoring well design; and, (4) schedule for completion of the work.
- 2. At least four (4) weeks prior to construction, a Well Monitoring Installation and Groundwater Level Network Report shall be submitted to the CPM for review and approval *in conjunction with Condition of Certification Soil & Water-5*. The report

shall include a scaled map showing the final monitoring well network. It shall document the drilling methods employed, provide individual well construction as-builds, borehole lithology recorded from the drill cuttings, well development, and well survey results. The well survey shall measure the location and elevation of the top of the well casing and reference point for all water level measurements, and shall include the coordinate system and datum for the survey measurements. Additionally, the report shall describe the water level monitoring equipment employed in the wells and document their deployment and use.

- 3. As part of the monitoring well network development, all newly constructed monitoring wells shall be constructed consistent with State and Riverside County specifications.
- 4. At least four (4) weeks prior to **use of any groundwater for construction**project construction, all groundwater quality and groundwater level monitoring data shall be reported to the CPM. The report shall include the following:
 - a. An assessment of pre-project groundwater levels, a summary of available climatic information (monthly average temperature and rainfall records from the nearest weather station), and a comparison and assessment of water level data relative to the assumptions and spatial trends simulated by the applicant's groundwater model.
 - b. (See Category III)
 - c. The data shall be tabulated, summarized, and submitted to the AO and CPM. The data summary shall include the estimated range (minimum and maximum values), average, and median for each constituent analyzed. If a sufficient number of data points are available, the data shall also be analyzed using the Mann-Kendall test for trend at 90 percent confidence to assess whether pre-project water quality trends, if any, are statistically significant.
- 5. During project construction and during the first five years of project operations, the project owner shall be quarterly during construction and the first year of operation and semi-annually thereafter monitor the quality of groundwater and changes in groundwater elevation and submit data semi-annually to the CPM and BLM AO. After five years, the frequency and scope of the monitoring program shall be reassessed by the AO and CPM. The summary report shall document water level monitoring methods, the water level data, water level plots, and a comparison between pre- and post-project start-up water level trends as itemized below. The report

shall also include a summary of actual water use conditions, monthly climatic information (temperature and rainfall) *from the nearest meteorological monitoring station*, and a comparison and assessment of water level data relative to the assumptions and simulated spatial trends predicted by the applicant's groundwater model.

- b. For analysis purposes, pre-project water quality shall be defined by samples collected prior to project construction as specified above, and compliance data shall be defined by samples collected after the construction start date. The compliance data shall be analyzed for both trends and for contrast with the pre-project data.
- c. Trends shall be analyzed using the Mann-Kendall test for trend at 90 percent confidence. Trends in the compliance data shall be compared and contrasted to pre-project trends, if any.
- d. The contrast between pre-project and compliance mean or median concentrations shall be compared using an Analysis of Variance (ANOVA) or other appropriate statistical method approved by the RWQCB for evaluation of water quality impacts. A parametric ANOVA (for example, an Ftest) can be conducted on the two data sets if the residuals between observed and expected values are normally distributed and have equal variance, or the data can be transformed to an approximately normal distribution. If the data cannot be represented by a normal distribution, then a nonparametric ANOVA shall be conducted (for example, the Kruskal-Wallis test). If a statistically significant difference is identified at 90 percent confidence between the two data sets, the monitoring data are inconsistent with random differences between the pre-project and baseline data indicating a significant water quality impact from project pumping may be occurring.

If compliance data indicate that the water supply quality has deteriorated (exceeds pre-project constituent concentrations in TDS, sodium, chloride, or other constituents identified as part of the monitoring plan and applicable Water Quality Objectives are exceeded for the applicable beneficial uses of the water supply) for three consecutive years, the project owner shall provide treatment or a new water supply to either meet or exceed pre-project water quality conditions to any impacted water supply wells.

CATEGORY II. GENESIS AND STAFF JOINT REVISED WORKSHOP MODIFICATIONS

CONDITION OF CERTIFICATION SOI&WATER-10

Genesis and Staff agreed to the following modification to Item B to this Condition of Certification at the Staff Assessment Workshop.

B. Channel cross-sections at 4200-foot intervals *or any major changes in channel configuration* showing the channel geometry, existing grade, proposed grade at the facility and how the channel would tie in at on both sides.

CATEGORY III.

DISPUTED CONDITIONS OF CERTIFICATION, ANALYSIS OR CONCLUSIONS

CONDITION OF CERTIFICATION SOIL&WATER-4

Genesis proposes the following modification to the Verification of this Condition of Certification to relax the requirement for daily monitoring and reporting as such a requirement is not necessary to comply with any applicable LORS or to mitigate any significant impact.

The Project owner shall prepare an annual summary, which will include daily usage, monthly range and monthly average of daily water usage in gallons per daymonth, and total water used on an monthly and annual basis in acre-feet. For years subsequent to the initial year of operation, the annual summary will also include the yearly range and yearly average water use by source. For calculating the total water use, the term "year" will correspond to the date established for the annual compliance report submittal.

CONDITION OF CERTIFICATION SOIL&WATER-5

Genesis and Staff discussed many of the modifications to this Condition of Certification at the Staff Assessment Workshop. However, it was unclear if Staff agreed with all of these modifications and therefore in order to preserve its rights to request modifications to this Condition of Certification for Genesis presents them here along with the following justifications.:

- 1. The condition of and use of existing wells should be documented prior to implementation of a monitoring and mitigation program.
- 2. Monitoring should be conducted in an envelope around that site that incorporates the area where potentially significant impacts could reasonably occur. 10 miles provides a suitable envelope around the

- predicted area of project drawdown impact for a wet-cooled project. Drawdown from a dry cooled project can be adequately monitored using shallow and deep test and monitoring wells associated with the project.
- 3. Quarterly monitoring for five years is unduly burdensome and will not result in additional certainty regarding recognition and evaluation of Project impacts. The proposed amended monitoring program includes more frequent measurements during the periods of rapid groundwater level change when pumping is initiated and then transitions to semi-annual monitoring, which is the typical frequency utilized by water management agencies to support management decisions. Water table impacts are predicted to be negligible and impacts will be better recognized through the use of recording pressure transducers in water table wells. Water levels in deeper water bearing zones are unlikely to display seasonal shorter term fluctuations. Seasonal fluctuations are not evident deeper based on review of well hydrographs in the basin.
- 4. A reasonable threshold of significance for drawdown impacts resulting in additional electrical cost is 5 feet, as adopted by CEC for the Blythe I and II projects. A formula is needed to calculated additional electrical costs in the event that electrical consumption and pump efficiency data are not available.
- 5. Clarification of the range of impacts that are being mitigated. Reimbursement should be proportional to impacts from Project pumping.

SOIL&WATER-5 The Project owner shall submit a Groundwater Level Monitoring and Reporting Plan to both the AO and CPM for review and approval. The Groundwater Level Monitoring and Reporting Plan shall provide detailed methodology for monitoring background and site groundwater levels. Monitoring shall include preconstruction, construction, and Project operation water use. The primary objective for the monitoring is to establish pre-construction and Project related groundwater level trends that can be quantitatively compared against observed and simulated trends near the Project pumping wells and near potentially impacted existing wells.

The Project Owner shall:

A. Prior to Project Construction

1. A well reconnaissance shall be conducted to investigate and document the condition of existing water supply wells located within 10 miles of the project site for a wet-cooled project and within 2 miles of the project site for a dry-cooled project, provided that access is granted by the well owners.

- 2. Monitor to establish preconstruction base line conditions. The monitoring plan and network of monitoring wells may will make use of the following wells:
- a. The 550-foot deep test well, 1,800-foot deep test well and shallow observation well two test wells and observation wells installed during the Groundwater Resources Investigation completed by the applicant (WPAR, 2010);
- b. The and any monitoring wells that are installed to comply with Waste Discharge Requirements issued by the RWQCB for the evaporation ponds and land treatment unit associated with the Project (a minimum of three shallow wells are anticipated to be required);
- c. A standby water production well that will be installed near the northern site boundary, northerly from the primary project production well;
- d. Up to four additional existing wells in the basin that are located up to 10 miles from the Project site will be incorporated into the program if wet cooling is utilized, provided access is granted by the owners and that the wells are deemed to be of suitable location and construction to-satisfy the requirements for the monitoring program. If possible, the off-site wells incorporated in the program will include both shallower wells completed above the pumped_interval and deeper wells completed within the pumped interval; and
- e. The monitoring plan shall also include the identification of any seeps and or springs within one mile of the perimeter of the project site. The seeps and or springs shall be included in the groundwater level monitoring network.
- Collect groundwater levels from the off-site and onsite wells, seeps and or springs to provide baseline initial groundwater levels for both on-site and off-site wells.
- Map groundwater levels within the CVGB within 10
 miles of the site from the groundwater data collected
 prior to construction. Update trend plots and statistical
 analyses, as data is available.

B. During Construction:

1. Collect water levels within the monitoring network and seeps and or springs on a quarterly basis throughout during construction and the first year of the operation construction period, and semi-annually thereafterand at the end of the construction period. In addition, collect continuous water level measurements from two shallow (water table) wells at the site using recording pressure transducers. Perform statistical trend analysis for water levels and the water quality data. Assess the significance of an apparent trend and estimate the magnitude of that trend. Use the pressure transducer data to characterize seasonal and diurnal fluctuations in groundwater levels.

C. During Operation:

- On a quarterly basis for the first five-years of operation and semi-annually thereafter for the first five years, collect water level measurements from anythe wells and seeps and or springs identified in the groundwater monitoring program to evaluate operational influence from the Project. In addition, collect continuous water level measurements from two shallow (water table) wells at the site using recording pressure transducers. Quarterly Oeperational parameters (i.e., pumping rate) of the water supply wells shall be monitored. Additionally, quarterly-groundwater-use in eastern the-CVGB shall be estimated based on available data
- 2. On an annual basis, perform trend analysis for water levels and comparison to predicted water level declines due to Project pumping. Analysis of the significance of an apparent trend shall be determined and the magnitude of that trend estimated. Use the pressure transducer data to characterize seasonal and diurnal fluctuations in groundwater levels. Based on the results of the statistical trend analyses and comparison to predicted water level declines due to Project pumping, the Project owner shall determine if the area where the Project pumping has induced a drawdown in the water supply at a level of 5 feet or more below the baseline trend.
- 3. If water levels have been lowered *more than 5 feet* below pre-site operational trends, and monitoring data

provided by the Project owner show these water level changes are different from background trends or influences by other groundwater pumpers and are caused by Project pumping, then the Project owner shall provide mitigation to the well owner(s) if impacted. Mitigation shall be provided to impacted well owners that experience 5 feet or more of Project-induced drawdown if the both the AO and CPM's inspection of the well monitoring data confirms the drawdown is the result of Project-related changes to water levels and water level trends relative to measured pre-project water levels, and the well vield or performance has been significantly effected yields outside the Project have been lowered by Project pumping. The type and extent of mitigation shall be determined by the amount of water level decline induced by the Project, the type of impact, and site specific well construction and water use characteristics. If an impact is determined to be caused by drawdown from more than one source, the level of mitigation provided shall be proportional to the amount of drawdown induced by the Project relative to other sources. In order to be eligible, a well owner must provide documentation of the well location and construction, including pump intake depth, and that the well was constructed and usable before **Project pumping was initiated.** The mitigation of impacts shall be determined as follows:

a. If Project pumping has lowered water levels and increased pumping lifts, increased energy costs shall be calculated. Payment or reimbursement for the increased costs shall be provided at the option of the affected well owner. In the absence of specific electrical use data supplied by the well owner, the following formula shall be used to calculate the additional electrical usage (CEC, 2005):

 $KWhr/year = (gallons \ Pumped/year) \ x \ (feet \ of \ interference \ drawdown) \ 1,621,629$

b. If groundwater monitoring data indicate Project pumping has lowered water levels below the top of the well

screen, and the well yield is shown to have decreased by 10 percent or more of the initial yield, compensation shall be provided for the diagnosis and maintenance to treat and remove encrustation from the well screen. Reimbursement shall be provided at an amount equal to the customary local cost of performing the necessary diagnosis and maintenance for well screen encrustation. Should well yield reductions be reoccurring, the Project owner shall provide payment or reimbursement for either periodic maintenance throughout the life of the Project or, if treatment is anticipated to be required more frequently than every 3-5 years, replacement of the well

c. If Project pumping has lowered water levels to significantly impact well yield so that it can no longer meet its intended purpose, causes the well to go dry, or cause casing collapse, payment or reimbursement of an amount equal to the cost of deepening or replacing the well shall be provided to accommodate these effects. Payment or reimbursement shall be at an amount equal to the customary local cost of deepening the existing well or constructing a new well of comparable design and yield (only deeper). The demand for water, which determines the required well yield, shall be determined on a per well basis using well owner interviews and field verification of property conditions and water requirements compiled as part of the pre-project well reconnaissance. Well yield shall be considered significantly impacted if it is incapable of meeting 150 percent of the well owner's maximum daily demand, dry-season demand, or annual demand - assuming the preproject well yield documented by the initial well reconnaissance met or exceeded these yield levels. For already low-yielding wells identified prior to Project construction, a reduction due solely to Project pumping of 10 percent or more below the pre-project yield shall be considered a significant impact. The contribution of Project pumping to observed decreases in observed well yield shall be determined using-by interpretation of the groundwater monitoring data collected and shall take into consideration the effect of other nearby pumping and the condition and age of

the well prior to the beginning of Project pumping.

- d. Electrical cost reimbursement If the pumping water level falls below a depth of 5 feet from an average of the baseline measurements, the well owner shall be compensated by the Project owner for the additional electrical costs commensurate with the additional lift required to pump. The water level in the well will be assessed relative to the pumping rate established during the pre-site development period.
- e. The Project owner shall notify all—any owners of the impacted wells within one month of both the AO and CPM approval of the compensation analysis for increased energy costs.
- f. Pump lowering In the event that groundwater is lowered as a result of Project pumping to an extent where pumps are exposed but well screens remain submerged the pumps shall be lowered to maintain production in the well. All-The Project shall reimburse the impacted well owner for the costs associated with lowering pumps shall be borne by the Project owner in proportion to the Project's contribution to the lowering of the water table that resulted in the impact.
- g. Deepening of wells If the groundwater is lowered enough as a result of Project pumping that well screens or pump intakes are exposed, and pump lowering is not an option. In this case,, such affected the wells shall be deepened or new wells constructed. The Project shall reimburse the impacted well owner for aAll costs associated with deepening existing wells or constructing new wells in proportion to the Project's contribution to the lowering of the water table that resulted in the impact. shall be borne by the Project owner.
- 4. After the first five-year operational and monitoring period both the AO and CPM shall evaluate the data and determine if the monitoring program water level measurement frequencies should be revised or eliminated. Revision or elimination of any monitoring

program elements shall be based on the consistency of the data collected. The determination of whether the monitoring program should be revised or eliminated shall be made by the both the AO and CPM.

- At the end of every subsequent five-year monitoring period, the collected data shall be evaluated by the both the AO and CPM and they shall determine if the sampling frequency should be revised or eliminated.
- During the life of the Project, the Project owner shall provide to the both the AO and CPM all monitoring reports, complaints, studies and other relevant data within 10 days of being received by the Project owner.

Verification: The Project owner shall do all of the following:

- 1. At least 30 days prior to Project construction, the Project owner shall submit to the both the AO and CPM, a comprehensive report presenting all the data and information required in item A above.
- 2. The Project owner shall submit to the both the AO and CPM all calculations and assumptions made in development of the report data and interpretations.
- 3. During Project construction, the Project owner shall submit to the both the AO and CPM quarterly and semi-annual reports (as applicable) presenting all the data and information required in item B above.
- 4. The Project owner shall submit to the both the AO and CPM all calculations and assumptions made in development of the report data and interpretations.
- 5. No later than 60 days *after commencing*prior to Project operation, the Project owner shall provide to the both the AO and CPM for review and approval, documentation showing that any mitigation to private well owners during Project construction was satisfied, based on the requirements of the property owner as determined by both the AO and CPM.
- 6. During Project operation, the Project owner shall submit to the both the AO and CPM, applicable quarterly, er-semi-annual and annual reports presenting all the data and information required in item C above.

- 7. The Project owner shall submit to the both the AO and CPM all calculations and assumptions made in development of report data and interpretations, calculations, and assumptions used in development of any reports.
- 8. The Project owner shall provide mitigation as described in item 3.c above, if the both the AO and CPM's inspection of the monitoring information confirms *Project-induced* changes to water levels and water level trends relative to measured preproject water levels, and well yield has been lowered by Project pumping. The type and extent of mitigation shall be determined by the amount of water level decline and site specific well construction and water use characteristics. The mitigation of impacts will be determined as set forth in item 3.c above.
- 9. If mitigation includes monetary compensation, the Project owner shall provide documentation to the both the AO and CPM that compensation payments have been made by March 31 of each year of Project operation or, if lump-sum payment are made, payment is made by March 31 following the first year of operation only. Within 30 days after compensation is paid, the Project owner shall submit to the both the AO and CPM a compliance report describing compensation for increased energy costs necessary to comply with the provisions of this condition.
- 10. After the first five year operational and monitoring period, the Project owner shall submit a 5 year monitoring report to both the AO and CPM that submits all monitoring data collected and provides a summary of the findings. Both the AO and CPM will determine if the water level measurement frequencies should be revised or eliminated.

CONDITION OF CERTIFICATION SOIL&WATER-8

Genesis and Staff discussed many the modifications the this Condition of Certification and Staff agreed to take Genesis comments into consideration when developing the Revised Staff Assessment. For completeness and to preserve the right to provide testimony in support of the following modifications Genesis has included the following modifications and rationale. The modifications are requested because Civil site drawings need to be approved by the CBO (including grading and drainage), therefore it is more reasonable to provide the 30% grading and drainage documents to the CPM 60 days before the first set of detailed civil drawings are provided to the CBO. This will allow the latest documents to be provided to the CPM and their comments incorporated into the drawing set provided to the CBO for approval.

- SOIL&WATER-8 The Project owner shall provide a revised Drainage Report which includes the following additional information:
 - A. Channel rating Cealculations for all the collector/conveyance channels and onsite drainage channels. Data provided shall include depth, velocity, Froude number and other relevant hydraulic parameters.
 - B. Detailed scour calculations to justify toe-down depths for all soil cement segments, drop structures, slope protection, and any other features where scour is an issue.
 - C. A discussion and associated calculation documenting the methods to be used for erosion control at outlet locations along the southern property boundary where flow is released to existing ground.
 - D. Revised hydrology map showing peak discharge values at locations where the onsite drainage system discharges into the proposed detention basins, or directly offsite, including discharge values at each of the outlet structures along the southern project boundary.
 - E. Stage-discharge ratings calculations for all outlet structures (i.e. pipes and weirs) used to outlet water along the southern project boundary.
 - F. Digital copies of all hydrologic and hydraulic analysis.

The Project owner shall also provide the 30 percent Grading and Drainage Plans which include the design based on information provided in the revised Drainage Report outlined above.

Verification: The Project owner shall submit a Revised Project Drainage
Report with the 30 percent Grading and Drainage Plans to both the AO and CPM for their review and comments 630 days before submission of civil drawings to the CBO for approval under condition of certification CIVIL-1after project certification. The owner will address comments provided by both the AO and CPM until approval of the report is issued. All comments and concepts presented in the approved Revised Project Drainage Report with the 30 percent Grading and Drainage Plans will be included in the final Grading and Drainage

Plans. The Revised Project Drainage Report and 30 percent Grading and Drainage Plans shall be approved by both the AO and CPM.

CONDITION OF CERTIFICATION SOIL&WATER-14

Genesis recommends this Condition of Certification be deleted as it is repetitive. Condition of Certification **BIO-23** addresses BLM's Decommissioning Plan requirements.

CONDITION OF CERTIFICATION SOIL&WATER-15

Genesis and Staff have been engaged in productive discussions at Staff Assessment Workshops to develop a water mitigation plan acceptable to both parties. However, an agreement has not been yet been developed. In order to preserve its rights to present information to the Committee in the event an agreement is not reached, Genesis presents the following in support of deleting this Condition of Certification.

Two methods have been proposed by the US Bureau of Reclamation, the USGS and the Colorado River Board to assess whether a project will require an entitlement to Colorado River water in order to pump groundwater. They include the Accounting Surface methodology (USGS, 2008) and the Aquifer Depletion Modeling methodology (Leake, et al., 2008). Sufficient data exist to demonstrate that the Project will not pump Colorado River water or require an entitlement under either of these two methods. This conclusion is supported by the following:

Four modeling studies were completed to assess the impacts of groundwater pumping in the CVGB. These studies included modeling for the Project (WPAR, 2010), for the Palen Solar Project (AECOM, 2010), for the Eagle Crest Pumped Storage Project (GEI, 2009), and for the Chuckwalla and Ironwood State Prison Expansion (Engineering Science, 1990), and each supported the conclusion that groundwater levels will not fall below the Bureau of Reclamation's proposed Colorado River Accounting Surface as a result of Project or cumulative pumping. Slight differences in modeling results from the above studies are related to differences in the methodology applied; however, in each case the applied methodology appears to meet the standard of care for that particular application and supports the same conclusion.

Twenty years of groundwater monitoring in the vicinity of the Chuckwalla Valley and Ironwood State Prisons indicate that groundwater levels have stabilized above the Accounting Surface in response to pumping at the prisons.

USGS (Leake, et al., 2008) modeled theoretical depletion of the Colorado River by pumping in various locations throughout the CVGB. Depletion is defined as the sum of decreased inflow from the aquifer to

the river, and increased outflow from the river to the aquifer. The study shows that most of the CVGB, including the site, is located outside of the area where pumping would deplete the Colorado River, even if pumping were to continue for 100 years.

There is therefore no technical basis for the supposition that the Project will need to obtain an entitlement to pump Colorado River water. In addition, the requirement that mitigation proceed on the assumption that the project is pumping Colorado River water simply because the basin within which the project is located has a potential indirect hydrologic connection with the Colorado River sets a precedent that is contrary to existing LORS, specifically California groundwater rights law, which does not require that pumpers of groundwater outside the floodplains of rivers obtain entitlements for surface water diversion.

Predicted changes in underflow from the CVGB to the PVMGB as a result of Project pumping are discussed in the Groundwater Resources Investigation completed for the project (WPAR, 2010). Modeling conducted as part of this study indicates a relatively modest reduction in underflow that increases from 10 AFY after three years to 319 AFY at the end of the Project life. This reduction in underflow will slightly effect the water budget for the PVMGB. and could result in groundwater being taken out of storage and/or possibly a depletion of Colorado River water. The extent of these effects in the PVMGB cannot be reliably predicted; however, it may be concluded that the nature and magnitude of the changes will not result in adverse impacts to wells or lead to a requirement that additional entitlements be obtained. We are currently evaluating options for refining the assessment of underflow from the CVGB to the PVMGB included in the GRI report, and evaluating the application of underflow analysis as a tool to guide the use Colorado River water entitlements as a potential mitigation measure to offset a portion of the Project's water use.

Genesis recommends this Condition of Certification be deleted.

CONDITION OF CERTIFICATION SOIL&WATER-17

Genesis requests the following modifications to this Condition of Certification for the following reasons. Almost all the subsiding areas associated with lowering of the groundwater table are underlain by young (Quaternary) unconsolidated or semiconsolidated clastic sediments of high porosity laid down in alluvial, lacustrine, or shallow marine environments (Poland, 1984). Additionally, nearly all the areas susceptible to subsidence in the southwestern United States exhibit semiconfined or confined aquifers systems containing aquifers of sand and/or gravel of high permeability and low compressibility, interbedded with clayey aquitards of low vertical permeability and high compressibility under virgin stresses (Poland, 1984). The aquifer that is proposed to be utilized for the Project water supply occurs in consolidated Pliocene sediments between approximately 800 and 1,800 feet below ground surface. The dense and consolidated clays in this interval would have a relatively lower susceptibility to

compression and settlement than the younger sediments involved in most instances of reported settlement in the area, and any amount of settlement occurring in the pumped aquifer would be attenuated through the thick sequence of overlying sediments, and less subsidence would be observed at the ground surface.

In addition, analysis of documented values of subsidence and its associated drop in the water table for similar desert basins in the southwestern United States indicates that the average ratio of subsidence to water level drawdown in these basins is 1 foot of subsidence per 114 feet of drawdown. (See memorandum from Worley Parsons dated April 28, 2010.) The maximum predicted water level decline related to Project pumping is approximately 10 feet in the immediate vicinity of the pumping centroid at the site, and decreases rapidly away from the well locations. Furthermore, among the power plants permitted by the CEC that rely on groundwater as a water supply, extensometers have been required for monitoring only for Pico Power, which is located in a basin with an extensive history subsidence, and is closer to potentially sensitive receptors. Thus, the likelihood of significant subsidence to occur as a result of project pumping for wet cooling is remote, and the use of extensometers for monitoring is not warranted.

SOIL&WATER-17 Three extensometers If the Project utilizes wet cooling, oone monument monitoring station per well or a minimum of three stations shall be constructed to measure potential inelastic subsidence that may alter surface characteristics of the Chuckwalla Valley near the proposed production wells.

The applicant will be required to:

- A. Prepare and submit a Subsidence Monitoring Plan (SMP). The plan shall include the following elements:
 - Construction diagrams of the proposed extensometers monument monitoring station including borehole-size and description, planned depth-of-anchor point(s), measuring points;
 - 2. Map depicting locations (minimum of three) of the planned extensometers monuments;
 - 3. Monitoring program that includes monitoring frequency, thresholds of significance, reporting format.
- B. Prepare quarterly reports commencing 3 months following commencement of groundwater production during construction and operations.

- 1. The reports will include presentation and interpretation of the data collected including comparison to the thresholds developed in Item C.
- C. Prepare a Mitigation Action Plan that will detail the following:
 - **1.** Thresholds of significance for implementation of proposed action plan;
 - Any subsidence that may occur will not be allowed to damage existing structures either on or off the site or alter the appearance or use of the structure;
 - Any subsidence that may occur will not be allowed to alter the natural drainage patterns or permit the formation of playas or lakes to form;
 - c. Any subsidence that violates (a) or (b) will result in the Project owner to investigate the need immediately to reduceing/ceaseing pumping until the cause is interpreted, subsidence caused by project groundwater pumping abates and the structures or drainage patterns are corrected or stabilized.returned to their pre-subsidence conditions.
 - 2. Action Plan that details proposed actions by the applicant in the event thresholds are achieved during the monitoring program.

The applicant will be required to submit the Ground Subsidence Monitoring and Action Plan that is prepared by an Engineering Geologist registered in the State of California 30 days prior to the start of extraction of groundwater for construction or operation.

Verification: The Project owner shall do all of the following:

- At least 30 days prior to Project construction, the Project owner shall submit to the both the AO and CPM, a comprehensive report presenting all the data and information required in item A above.
- 2. The Project owner shall submit to the both the AO and CPM all calculations and assumptions made in development of the SMP.
- 3. During Project construction and operations, the Project owner shall submit to the both the AO and CPM quarterly reports presenting all the data and information required in item B above.

- 4. The Project owner shall submit to the both the AO and CPM all calculations and assumptions made in development of the report data and interpretations.
- 5. After the first five years of the monitoring period, the Project owner shall submit a 5 year monitoring report to both the AO and CPM that submits all monitoring data collected and provides a summary of the findings. Both the AO and CPM will determine if the Ground Subsidence Monitoring and Action Plan frequencies should be revised or eliminated.

CONDITION OF CERTIFICATION SOIL&WATER-18

Genesis and Staff have a major disagreement concerning whether the GSEP's use of highly degraded groundwater for cooling complies with the State water policies. Notwithstanding that disagreement, Genesis and Staff have engaged in productive discussions regarding a mitigation strategy that may be employed to ensure Staff can testify that the use of the groundwater for cooling would comply with State water policies. However, such a mitigation strategy is closely related to the determination and quantification of potential impacts to the Colorado River and the mitigation that Staff may require to mitigate those potential impacts. Genesis will address compliance with State water policies in its testimony after the Revised Staff Assessment is published.

CONDITION OF CERTIFICATION SOIL & WATER-19

Two methods have been proposed by the US Bureau of Reclamation, the USGS and the Colorado River Board to assess whether a project will require an entitlement to Colorado River water in order to pump groundwater. They include the Accounting Surface methodology (USGS, 2008) and the Aquifer Depletion Modeling methodology (Leake, et al., 2008). Data from four modeling studies in the CVGB, aquifer depletion modeling conducted by USGS, and 20 years of groundwater modeling conducted for the Chuckwalla and Ironwood State Prisons have generated sufficient data to demonstrate that the Project will not pump Colorado River water or require an entitlement under either of these two methods. There is therefore no technical basis for the supposition that the Project will need to obtain an entitlement to pump Colorado River water. In addition, the requirement that mitigation proceed on the assumption that the project is pumping Colorado River water simply because the basin within which the project is located has a potential indirect hydrologic connection with the Colorado River sets a precedent that is contrary to existing LORS, specifically California groundwater rights law, which does not require that pumpers of groundwater outside the floodplains of rivers obtain entitlements for surface water diversion.

Predicted changes in underflow from the CVGB to the PVMGB as a result of Project pumping are discussed in the Groundwater Resources Investigation

completed for the project (WPAR, 2010). Modeling conducted as part of this study indicates a relatively modest reduction in underflow that increases from 10 AFY after three years to 319 AFY at the end of the Project life. This reduction in underflow will slightly effect the water budget for the PVMGB. The extent to which the reduction in underflow to the PVMGB is partitioned among decreased storage, intercepted discharge and induced recharge is uncertain, and the proposed modeling study in COC S&W-19 will not do more to significantly decrease this uncertainty than a simpler analytical modeling approach such as the existing USGS Aquifer Depletion Modeling methodology (Leake, et al., 2008). Furthermore, the proposed modeling study would take up to approximately one year to complete, would un-necessarily delay the project, and would result in significant loss of funding and financial hardship without technical basis. At this time, we therefore recommend deleting the wording as currently shown in COC Soil and Water-19.

Although the Project will not pump Colorado River water or require a Colorado River water entitlement under the methods proposed by USGS, BOR and the Colorado River Board for determining when such an entitlement may be required for pumping groundwater, if CEC Staff continues to insist on assuming that 100% of groundwater use is Colorado River water unless additional modeling is employed, the project proposes the following approach to further evaluation of the Project's effect on the water budget of the PVMGB and the interaction of groundwater with the Colorado River.

SOIL&WATER-19 The Project owner will develop a refined analysis of the Project's effect on the PVMGB water budget, including an estimate of the amount of Colorado River depletion due to project pumping. This estimate may be used for determining the appropriate volume of water for mitigation of Colorado River Water impacts. The Project owner shall do the following to provide an estimate for review and approval by the AO and CPM:

The Project owner shall conduct an analysis of the Project's effect on the PVGB groundwater budget including an estimate of the decrease in underflow form the CVGB to the PVMGB and the fraction of this decrease that may result in Colorado River water. The analysis shall include the following:

- 1. Refinement of the estimate of decrease in underflow from the CVGB to the PVMGB using the numerical groundwater flow model developed for the Project. A reasonable upper-bound estimate of underflow decrease shall be developed through additional sensitivity analysis of the lateral hydraulic conductivity of the pumped aquifer and the general head boundaries.
 - a. A statistical analysis of the 17 existing pumping tests and specific capacity tests in the eastern CVGB shall be conducted to

characterize the distribution of hydraulic conductivity values in the area.

- b. Model runs shall be conducted using the first quartile (25%), second quartile (50%) and third quartile (75%) hydraulic conductivities to evaluate the change in underflow induced by Project pumping under a reasonable range of values.
- 2. The maximum predicted decrease in underflow shall be used as an input into the USGS Aquifer Depletion Model at the CVGB-PVMGB basin boundary to assess the percentage of decreased underflow that may be considered to be Colorado River water depletion. The USGS model may be adjusted to reflect actual Project conditions.
- 3. An assessment report shall be prepared summarizing the methods and results of this supplemental analysis, presenting any supporting data, assumptions made, and an estimate of the uncertainty of Colorado River depletion.

CONDITION OF CERTIFICATION SOIL&WATER-20

Genesis requests the following modification to Item 4 b of the Verification of this Condition of Certification to eliminate certain isotopic testing. Isotopic analysis is not related to documentation of project impacts and is inappropriate for inclusion in this program. Analysis of water quality parameters that represent the potential impact together with the use of graphical tools such as Piper or Stiff Diagrams are typically used for water quality monitoring programs. We are not aware of any other project that has been required to conduct isotopic analysis as part of impact monitoring, and we are not aware of any detection monitoring programs required by EPA or the RWQCB where stable isotope date is required to be collected.

b. As assessment of pre-project groundwater quality with groundwater samples analyzed for TDS, chloride, nitrates, major cations and anions, oxygen-18 and deuterium isotopes and any other constituents the AO and/or CPM deem critical in protecting existing water supply quality.

Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 09-AFC-08

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DECLARATION OFP. Duane McCloud

I, P. Duane McCloud, declare as follows:

- 1. I am presently employed by NextEra Energy Resources, LLC., as a Lead Professional for Construction and Engineering.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to the Traffic and Transportation for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, Florida on May 16, 2010.

P. Duane McCloud

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF Scott A Busa

- I, Scott A Busa, declare as follows:
 - 1. I am presently employed by NextEra Energy Resources, LLC, as a Director of Business Development.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Traffic and Transportation for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, FL on May 18, 2010.

Scott A Busa

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OFJENNIFER MARCHEK

I, Jennifer Marchek, declare as follows:

- 1. I am presently employed by WorleyParsons, as a Senior Engineer.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- I prepared the attached testimony relating to Traffic and Transportation for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Folsom, CA on May 14, 2010.

Jennika Mauhek Jennifer Marchek

GENESIS SOLAR ENERGY PROJECT TRAFFIC AND TRANSPORTATION OPENING TESTIMONY

I. Name: Scott A Busa, P. Duane McCloud and Jennifer Marchek

II. Purpose:

Our testimony addresses the subject of Traffic and Transportation associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

Scott A. Busa: I am presently employed at NextEra Energy Resources, and have been for the past 21 years and am presently a Director with that organization. I have over 23 years of experience development, construction, and operation of Electrical Utilities and Power Generation. I prepared or assisted in the preparation of the Traffic and Transportation section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

P. Duane McCloud: I am presently employed at NextEra Energy Resources, LLC., and have been for the past 12 years and am presently a Lead Professional with that organization. I have a B.S. Degree in Chemical Engineering and I have over 28 years of experience in the field of power generation. I prepared or assisted in the preparation of the Traffic and Transportation section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Jennifer Marchek: I am presently employed at WorleyParsons, and have been for the past two years and am presently a Senior Engineer with that organization. I have a B.S. Degree in Chemical Engineering and I have over 5 years of experience in the field of Environmental Impacts of Traffic and Transportation. I prepared or assisted in the preparation of the Traffic and Transportation section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

Application for Certification Vol I & II, dated Exhibit 1

August 2009, and docketed on August 31,

2009, Section 5.11.

Report of Conversation Regarding Caltrans Traffic Counts for Interstate I-10 for 2004.

2008, 2012, AFC Table 5.11-2 (Between Exhibit 41 Mike Monasmith and Tricia Bernhardt).

dated February 25, 2010, and docketed on

February 26, 2010.

Genesis Solar LLC's Proposed Conditions of Certification for Other Resource Areas.

Exhibit 51 dated April 30, 2010, and docketed on May 3,

2010.

V. Opinion and Conclusions

Genesis Solar LLC. (Genesis) has reviewed the analysis and all conditions of certifications embodied in the SA/DEIS, participated in workshops. Since Genesis is filing this testimony prior to Staff publishing its Revised Staff Assessment, we have included all areas where our opinion differs from the analysis or recommended Conditions of Certification contained in the SA/DEIS. However, since Genesis and Staff made substantial progress at the Staff Assessment Workshops, in an effort to clarify for the Committee the relatively few areas that may need Committee resolution, we have divided this testimony into the following categories.

- Category I Modifications to Conditions of Certification that were proposed by Genesis in its comments on the SA/DEIS and that were accepted by Staff at Staff Assessment Workshops
- Category II Modifications that Genesis and Staff agreed after discussion at Staff Assessment Workshops and would be included in the Revised Staff Assessment
- Category III Modifications to Conditions of Certification that Genesis has proposed that Staff has either rejected or needed additional time or

information to consider and any disagreement with Staff's analysis and ultimate conclusions

CATEGORY I GENESIS PROPOSED MODIFICATIONS AGREED BY STAFF

See the discussion under Category II.

CATEGORY II GENESIS AND STAFF JOINT REVISED WORKSHOP MODIFICATIONS

CONDITION OF CERTIFICATION TRANS-1

Genesis provided comments on this Condition of Certification that were discussed at the Staff Assessment Workshops. Staff informed Genesis that it understood the concerns raised and is revising this condition to remove the requirement for a specific park and ride program. A draft of the revised condition was circulated at the Staff Assessment Workshop and the language was acceptable to Genesis. Genesis will provide a response in its rebuttal testimony after the Revised Staff Assessment is published.

CATEGORY III DISPUTED CONDITIONS OF CERTIFICATION, ANALYSIS OR CONCLUSIONS

At this time Genesis does not anticipate any disputes in Traffic and Transportation

Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 09-AFC-08

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DECLARATION OFP. Duane McCloud

I, P. Duane McCloud, declare as follows:

- 1. I am presently employed by NextEra Energy Resources, LLC., as a Lead Professional for Construction and Engineering.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to the Transmission Line Safety and Nuisance for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, Florida on May 16, 2010.

P. Duane McCloud

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OFSteven Richards

- I, Steven Richards, declare as follows:
 - 1. I am presently employed by WorleyParsons, as an associate electrical engineer.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Transmission Line Safety and Nuisance for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

Leclare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on May 18, 2010.

Steven Richards

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Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF Scott A Busa

- I, Scott A Busa, declare as follows:
 - 1. I am presently employed by NextEra Energy Resources, LLC, as a Director of Business Development.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Transmission Line Safety and Nuisance for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, FL on May 18, 2010.

Scott A Busa

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GENESIS SOLAR ENERGY PROJECT TRANSMISSION LINE SAFETY AND NUISANCE OPENING TESTIMONY

I. <u>Name</u>: P. Duane McCloud, Scott A. Busa and Steven Richards

II. Purpose:

Our testimony addresses the subject of the Transmission Line Safety and Nuisance associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

P. Duane McCloud: I am presently employed at NextEra Energy Resources, LLC., and have been for the past 12 years and am presently a Lead Professional with that organization. I have a B.S. Degree in Chemical Engineering and I have over 28 years of experience in the field of power generation. I prepared or assisted in the preparation of the Transmission Line Safety and Nuisance section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Scott A. Busa: I am presently employed at NextEra Energy Resources, and have been for the past 21 years and am presently a Director with that organization. I have over 23 years of experience development, construction, and operation of Electrical Utilities and Power Generation. I prepared or assisted in the preparation of the Transmission Line Safety and Nuisance section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Steven Richards: I am presently employed at WorleyParsons, and have been for the past two and a half years and am presently an associate electrical engineer with that organization. I have a Bachelors Degree in Electrical Engineering and I have over two years of experience in the field of electrical engineering. I prepared or assisted in the preparation of the Transmission Line Safety and Nuisance section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these

statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

Exhibit 1

Application for Certification Vol I & II, dated August 2009, and docketed on August 31, 2009, Section 4.2.

V. Opinion and Conclusions

We have reviewed the Transmission Line Safety and Nuisance section of the Staff Assessment and agree that with incorporation of the Conditions of Certification, the Transmission Line Safety and Nuisance section of the Project will not result in significant impacts and will comply with all laws, ordinances, regulations and standards (LORS).

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF

Kenneth Stein

- I, Kenneth Stein, declare as follows:
 - 1. I am presently employed by NextEra Energy Resourcess, LLC, as an Environmental and Permitting Manager.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Visual Resources for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed in Ft. Lauderdale, FL on May 18, 2010.

Kenneth Stein

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF Scott A Busa

- I, Scott A Busa, declare as follows:
 - 1. I am presently employed by NextEra Energy Resources, LLC, as a Director of Business Development.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Visual Resources for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, FL on May 18, 2010.

Scott A Busa

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Energy Resources Conservation and Development Commission

| In the Matter of: | DOCKET NO. 09-AFC-08 |
|---------------------------------------|----------------------|
| Application For Certification for the | DECLARATION OF |
| GENESIS SOLAR ENERGY PROJECT | Andrea M Slusser |

- I, Andrea M Slusser, declare as follows:
 - 1. I am presently employed by Tetra Tech, EC Inc, as a part time land use planner and visual resources specialist.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Visual Resources for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

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Andrea M Slusser

GENESIS SOLAR ENERGY PROJECT VISUAL RESOURCES OPENING TESTIMONY

I. <u>Name</u>: Kenneth Stein, Andrea M. Slusser and Scott A. Busa

II. Purpose:

Our testimony addresses the subject of Visual Resources associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

Kenneth Stein: I am presently employed at NextEra Energy Resources, and have been for the past 6 years and am presently an Environmental and Permitting Manager with that organization. I have a B.S Degree in Environmental Science and a Law Degree with a focus in Environmental Law and I have over 20 years of experience in the field of Environmental Permitting. I prepared or assisted in the preparation of the Visual Resources section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Andrea M. Slusser: I am presently employed at Tetra Tech, EC Inc, and have been for the past 9 years and am presently a Land Use Planner and Visual Resources Specialist with that organization. I have a Bachelor of Science Degree in Natural Resources Planning and I have over 9 years of experience in the field of land use planning and NEPA. I prepared or assisted in the preparation of the Land Use and Visual Resources sections of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Scott A. Busa: I am presently employed at NextEra Energy Resources, and have been for the past 21 years and am presently a Director with that organization. I have over 23 years of experience development, construction, and operation of Electrical Utilities and Power Generation. I prepared or assisted in the preparation of the Visual Resources section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these

statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

| Exhibit 1 | Application for Certification Vol I & II, dated August 2009, and docketed on August 31, 2009, Section 5.10. |
|------------|---|
| Exhibit 3 | Data Adequacy Supplement, dated October 2009, and docketed on October 12, 2009. |
| Exhibit 12 | Genesis Solar, LLC's Informational Hearing & Site Visit Presentation, dated, and docketed on December 18, 2009. |
| Exhibit 21 | Data Request Responses to Set 1B, 228 through 292, dated January 11, 2010, and docketed on January 11, 2010, Responses (283-292). |
| Exhibit 51 | Genesis Solar LLC's Proposed Conditions of Certification for Other Resource Areas, dated April 30, 2010, and docketed on May 3, 2010. |

V. Opinion and Conclusions

Genesis Solar LLC, (Genesis) has reviewed the analysis and all conditions of certifications embodied in the SA/DEIS, participated in workshops. Since Genesis is filing this testimony prior to Staff publishing its Revised Staff Assessment, we have included all areas where our opinion differs from the analysis or recommended Conditions of Certification contained in the SA/DEIS. However, since Genesis and Staff made substantial progress at the Staff Assessment Workshops, in an effort to clarify for the Committee the relatively few areas that may need Committee resolution, we have divided this testimony into the following categories.

- Category I Modifications to Conditions of Certification that were proposed by Genesis in its comments on the SA/DEIS and that were accepted by Staff at Staff Assessment Workshops
- Category II Modifications that Genesis and Staff agreed after discussion at Staff Assessment Workshops and would be included in the Revised Staff Assessment

 Category III - Modifications to Conditions of Certification that Genesis has proposed that Staff has either rejected or needed additional time or information to consider and any disagreement with Staff's analysis and ultimate conclusions

After the Revised Staff Assessment is published Genesis remains confident that if any Visual disputes exist, they will be confined in the third category only.

CATEGORY I GENESIS PROPOSED MODIFICATIONS AGREED BY STAFF

Genesis did not receive feedback from Staff on its proposed modifications to conditions of certification prior to preparation of this testimony and therefore even though Genesis believes that Staff may agree with many of the proposed modifications, they have been included in Category III.

CATEGORY II. GENESIS AND STAFF JOINT REVISED WORKSHOP MODIFICATIONS

The subject of Visual Resources was not discussed during Staff Assessment Workshops and therefore there are no proposed modifications included in Category II.

CATEGORY III. DISPUTED CONDITIONS OF CERTIFICATION, ANALYSIS OR CONCLUSIONS VISUAL IMPACTS ARE NOT SIGNIFICANT

Staff concludes that the project DOES NOT result in direct or indirect significant project impacts but concludes that the project results in a significant unmitigatable cumulative impact to the California Desert. We disagree that the GSEP will result in significant cumulative impacts for the following reasons.

The GSEP will only be slightly visible from any viewpoint that the general population could access. The key observation points for most of the proposed solar projects in the California Desert will be from I-10. The California Desert Conservation Area, the area that encompasses most of the proposed solar projects in southeastern California, is over 25 million acres. Even if 10 solar projects were constructed at 2000 acres each, the 20,000 acres of solar panels, troughs, mirrors and other facilities would change the visual environment of less than 1 percent of this desert.

Additionally, the projects are not adjacent to each other, providing an I-10 traveler many miles of desert scenery without seeing a solar project. Therefore, the Genesis Solar Energy Project will not contribute to a significant cumulative visual impact.

CONDITION OF CERTIFICATION VIS-1, Verification

Genesis requests the minor change to reflect that the project will be located within Riverside County.

<u>Verification</u> At least 90 days prior to specifying to the vendor the colors and finishes of the first structures or buildings that are surface treated during manufacture, the project owner shall submit the proposed treatment plan to BLM's Authorized Officer and the CPM for review and approval and simultaneously to <u>San Bernardino County Riverside County</u> for review and comment. If BLM's Authorized Officer and the CPM determine that the plan requires revision, the project owner shall provide to BLM's Authorized Officer and the CPM a plan with the specified revision(s) for review and approval by BLM's Authorized Officer and the CPM before any treatment is applied. Any modifications to the treatment plan must be submitted to BLM's Authorized Officer and the CPM for review and approval.

Prior to the start of commercial operation, the project owner shall notify BLM's Authorized Officer and the CPM that surface treatment of all listed structures and buildings has been completed and they are ready for inspection and shall submit to each one set of electronic color photographs. from the same key observation points identified in (d) above. The project owner shall provide a status report regarding surface treatment maintenance in the Annual Compliance Report. The report shall specify a): the condition of the surfaces of all structures and buildings at the end of the reporting year; b) maintenance activities that occurred during the reporting year; and c) the schedule of maintenance activities for the next year.

CONDITION OF CERTIFICATION VIS-3

Genesis has investigated the possibility of setting the transmission line back ½ mile from I-10. However, the transmission line will cross I-10 and will be visible even if the transmission line is set back. The proposed corridor, as it is now planned, was chosen carefully to avoid biological, cultural and land use concerns and it is not feasible to move the transmission line at this time and still meet the project objectives. Therefore, Genesis requests this Condition of Certification be deleted.

CONDITION OF CERTIFICATION VIS-4

The perimeter fence is planned to be 8 foot in height, not 10 and therefore the following modification is requested..

VIS-4 In order to reduce brightness of spread reflections of the sun to off-site viewers, the perimeter chain link fencing proposed

by Applicant shall include opaque privacy slats of a minimum 40 8 feet in height. The slats shall be of a dark tan or earthtone color selected to blend with the visual background of the site.

CONDITION OF CERTIFICATION VIS-6

Genesis requests the following changes be incorporated to reflect that the natural drainage patterns and vegetation cannot be retained for the project site. The linear alignments have been carefully chosen for other environmental reasons and cannot be changed to follow landscape contours and the structures cannot be buried.

VIS-6 To the extent possible practicable, the project owner will use applicable design principles to reduce the visual contrast of the project with the characteristic landscape. These include proper siting and location; reduction of visibility; repetition of form, line, color (see VIS-1) and texture of the landscape; and reduction of unnecessary disturbance. Design strategies to address these fundamentals will be based on the following factors:

Earthwork: Select locations and alignments that fit into the landforms to minimize the size of cuts and fills. Avoid hauling in or hauling out of excess earth cut or fill. Avoid rounding and/or warping slopes. Retain existing rock formations, vegetation, and drainage. Tone down freshly broken rock faces with emulsions or stains. Use retaining walls to reduce the amount and extent of earthwork. Retain existing vegetation by using retaining walls or fill slopes, reducing surface disturbance, and protecting roots from damage during excavations. Avoid soil types that generate strong color contrasts. Reduce dumping or sloughing of excess earth and rock on downhill slopes.

Vegetation Manipulation: Retain as much of the existing vegetation as possible. Use existing vegetation to screen the development from public viewing. Use scalloped, irregular cleared edges to reduce line contrast. Use irregular clearing shapes to reduce form contrast. Feather and thin the edges of cleared areas and retain a representative mix of plant species and sizes.

Structures: Minimize the number of structures and combine different activities in one structure. Use natural, self-weathering materials and chemical treatments on surfaces to reduce color contrast. Bury all or part of the

structure. Use natural appearing forms to complement the characteristic landscape. Screen the structure from view by using natural land forms and vegetation. Reduce the line contrast created by straight edges.

Linear Alignments: Use existing topography to hide induced changes associated with roads, lines, and other linear features. Select alignments that follow landscape contours. Avoid fall line cuts and bisecting ridge tops. Hug vegetation lines and avoid open areas such as valley bottoms. Cross highway corridors at less sharp angles.

Reclamation and Restoration: Reduce the amount of disturbed area and blend the disturbed areas into the characteristic landscape. Replace soil, brush, rocks, and natural debris over disturbed area. Newly introduce plant species should be of a form, color, and texture that blends with the landscape.

<u>Verification:</u> As early as possible in the site and facility design, the project owner shall meet with BLM's Authorized Office and the CPM to discuss incorporation of these above factors into the design plans. At least 90 days *prior to construction* prior to final site and facility design, the project owner shall contact BLM's Authorized Officer and the CPM to review the incorporation of the above factors into the final facility and site design plans. If BLM's Authorized Officer and the CPM determine that the site and facility plans require revision, the project owner shall provide to BLM's Authorized Officer and the CPM a revised plan for review and approval by BLM's Authorized Officer and the CP.

Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 09-AFC-08

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DECLARATION OF P. Duane McCloud

I, P. Duane McCloud, declare as follows:

- 1. I am presently employed by NextEra Energy Resources, LLC., as a Lead Professional for Construction and Engineering.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to the Waste Management for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, Florida on May 16, 2010.

P. Duane McCloud

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OFKenneth Stein

I, Kenneth Stein, declare as follows:

- 1. I am presently employed by NextEra Energy Resourcess, LLC, as an Environmental and Permitting Manager.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Waste Management for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed in Ft. Lauderdale, FL on May 18, 2010.

Kenneth Stein

Energy Resources Conservation and Development Commission

09-AFC-08

| In the Matter of: | DOCKET NO. 09-AF |
|---------------------------------------|------------------|
| Application For Certification for the | DECLARATION OF |
| CENESIS SOLAD ENERGY DROJECT | CLENT KING |

I, Glen T. King declare as follows:

- 1. I am presently employed by NextEra Energy Resources, as an Environmental Specialist.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Waste Management for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- It is my professional opinion that the attached prepared testimony is 4. valid and accurate with respect to issues that it addresses.
- I am personally familiar with the facts and conclusions related in the 5. attached prepared testimony and if called as a witness could testify competently thereto.

| I declare under penalty of perju | ry, under the laws | s of the State of California, | that |
|-----------------------------------|--------------------|-------------------------------|------|
| the foregoing is true and correct | t to the best of m | y knowledge and that this | |
| declaration was executed at | Boron | , ČA on | |
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Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OFJANINE FORREST

I, Janine Forrest, declare as follows:

- 1. I am presently employed by Worley Parsons, as an Environmental Engineer.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Waste Management for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Martinez, CA on March 17th, 2010.

Janine Forrest

GENESIS SOLAR ENERGY PROJECT WASTE MANAGEMENT OPENING TESTIMONY

I. Name: Glen T. King, Janine Forrest, Duane McCloud and Kenneth Stein

II. Purpose:

Our testimony addresses the subject of Waste Management associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

Glen T. King: I am presently employed at SEGS III - IX, and have been for the past 19 years and am presently an Environmental Specialist with that organization. I have over 18 years of experience in the field of Waste Management. I prepared or assisted in the preparation of the Waste Management section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Janine Forrest: I am presently employed at WorleyParsons, and have been for the past 2 years and am presently an Environmental Engineer with that organization. I have an Environmental Engineering Degree majoring in land and water and I have over 6 years of experience in those fields. I prepared or assisted in the preparation of the Waste Management, Worker Safety and Hazardous Materials sections of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

<u>Duane McCloud:</u> I am presently employed at NextEra Energy Resources, LLC., and have been for the past 12 years and am presently a Lead Professional with that organization. I have a B.S. Degree in Chemical Engineering and I have over 28 years of experience in the field of power generation. I prepared or assisted in the preparation of the Waste Management section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Kenneth Stein: I am presently employed at NextEra Energy Resources, and have been for the past 6 years and am presently an Environmental and Permitting Manager with that organization. I have a B.S Degree in Environmental Science and a Law Degree with a focus in Environmental Law and I have over 20 years of experience in the field of Environmental

Permitting. I prepared or assisted in the preparation of the Waste Management section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are my own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

| Exhibit 1 | Application for Certification Vol I & II , dated August 2009, and docketed on August 31, 2009. Section 5.13. |
|------------|---|
| Exhibit 11 | Data Requests Set 1A Responses 1 through 227, dated December 14, 2009, and docketed on December 15, 2009, Responses 215 through 225. |
| Exhibit 12 | Genesis Solar, LLC's Informational Hearing & Site Visit Presentation, dated, and docketed on December 18, 2009. |
| Exhibit 51 | Genesis Solar LLC's Proposed Conditions of Certification for Other Resource Areas, dated April 30, 2010, and docketed on May 3, 2010. |

V. Opinion and Conclusions

Genesis Solar LLC, (Genesis) has reviewed the analysis and all conditions of certifications embodied in the SA/DEIS, participated in workshops. Since Genesis is filing this testimony prior to Staff publishing its Revised Staff Assessment, we have included all areas where our opinion differs from the analysis or recommended Conditions of Certification contained in the SA/DEIS. However, since Genesis and Staff made substantial progress at the Staff Assessment Workshops, in an effort to clarify for the Committee the relatively few areas that may need Committee resolution, we have divided this testimony into the following categories.

- Category I Modifications to Conditions of Certification that were proposed by Genesis in its comments on the SA/DEIS and that were accepted by Staff at Staff Assessment Workshops
- Category II Modifications that Genesis and Staff agreed after discussion at Staff Assessment Workshops and would be included in the Revised Staff Assessment
- Category III Modifications to Conditions of Certification that Genesis has proposed that Staff has either rejected or needed additional time or information to consider and any disagreement with Staff's analysis and ultimate conclusions

After the Revised Staff Assessment is published Genesis remains confident that if any Waste Management disputes exist, they will be confined in the third category only.

CATEGORY I GENESIS PROPOSED MODIFICATIONS AGREED BY STAFF

Genesis did not receive feedback from Staff on its proposed modifications to conditions of certification prior to preparation of this testimony and therefore even though Genesis believes that Staff may agree with many of the proposed modifications, they have been included in Category III.

CATEGORY II GENESIS AND STAFF JOINT REVISED WORKSHOP MODIFICATIONS

The subject of Waste Management was not discussed during Staff Assessment Workshops and therefore there are no proposed modifications included in Category II.

CATEGORY III DISPUTED CONDITIONS OF CERTIFICATION, ANALYSIS OR CONCLUSIONS

CONDITION OF CERTIFICATION WASTE-1, VERIFICATION

Genesis requests the following modifications to the Verification of this condition since the project will abide by all LORS and therefore a separate agreement with the DTSC is redundant and unnecessary. The name of the project has also been updated.

<u>Verification:</u> The project owner shall consult with the Department of Toxic

Substances Control, and abide by all federal, state and local requirements for site assessment and remediation if enter into a consent agreement as necessary to ensure oversight of any additional site

assessment and remediation work needed to reevaluate the site or address-contaminationed soil is identified found during any phase of GSEP SES Solar Two site construction. The project owner shall ensure that the CPM is involved and appraised of all discussions with Department of Toxic Substances Control, and CPM concurrence shall be required for project decisions addressing site remediation.

CONDITION OF CERTIFICATION WASTE-2

Genesis requests the following language be added for clarification.

WASTE-2 The project owner shall provide the resume of an experienced and qualified professional engineer or professional geologist, who shall be available for *building* during site characterization (if needed), demolition, *soil* excavation, and grading activities, to the CPM for review and approval. The resume shall show experience in remedial investigation and feasibility studies.

The professional engineer or professional geologist shall be given authority by the project owner to oversee any earth moving activities that have the potential to disturb contaminated soil and impact public health, safety and the environment.

<u>Verification:</u> At least 30 days prior to the start of site mobilization, the project owner shall submit the resume to the CPM for review and approval.

CONDITION OF CERTIFICATION WASTE-7

Genesis requests that this condition be deleted for the following reasons:

- 1. Many contractors are national organizations an enforcement action against one division somewhere in the country doesn't necessarily mean a problem at the facility;
- 2. The term "enforcement action" is not defined and the mere fact of an impending enforcement action cannot appropriately be understood to mean that the "accused" is guilty before the issue is resolved.
- 3. The term "when the owner becomes aware" is very vague how does one establish when and if the owner becomes aware of this type of information?

CONDITION OF CERTIFICATION WASTE-8

As Staff correctly identifies, there are no applicable LORS that would require the GSEP to comply with this condition. Additionally, the GSEP will not impact local landfills and therefore this condition is not necessary to mitigate any project related impacts and should be deleted.

CONDITION OF CERTIFICATION WASTE-10

This condition requires ALL spills to be reported. To prevent the onerous reporting of every drip and leak from every connector or valve, the condition has been modified to require reporting of spills above EPA's reportable quantities (RQ) limits. The verification has also included the words "during construction and on the property during operation" since the Project owner will not be operating the liner facilities therefore will have no knowledge or control over these activities. Accordingly, Applicant requests the following modification and language be added for clarification.

WASTE-10 The project owner shall ensure that all-spills or releases of hazardous substances, hazardous materials, or hazardous waste are documented and cleaned up and that wastes generated from the release/spill are properly managed and disposed of, in accordance with all applicable federal, state, and local requirements.

Verification: The project owner shall document management of all unauthorized releases and spills of hazardous substances, hazardous materials, or hazardous wastes that are in excess of EPA's reportable quantities (RQ), that occur on the project property or related linear facilities during construction and on the property during operation. The documentation shall include, at a minimum, the following information: location of release; date and time of release; reason for release; volume released; how release was managed and material cleaned up; amount of contaminated soil and/or cleanup wastes generated; if the release was reported; to whom the release was reported; release corrective action and cleanup requirements placed by regulating agencies; level of cleanup achieved and actions taken to prevent a similar release or spill; and disposition of any hazardous wastes and/or contaminated soils and materials that may have been generated by the release. A copy of the unauthorized release/spill documentation shall be provided to the CPM within 30 days of the date the release was discovered.

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF Scott A Busa

I, Scott A Busa, declare as follows:

- 1. I am presently employed by NextEra Energy Resources, LLC, as a Director of Business Development.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Worker Safety for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, FL on May 18, 2010.

Scott A Busa

Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 09-AFC-08

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DECLARATION OFP. Duane McCloud

I, P. Duane McCloud, declare as follows:

- 1. I am presently employed by NextEra Energy Resources, LLC., as a Lead Professional for Construction and Engineering.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to the Worker Safety for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, Florida on May 16, 2010.

P. Duane McCloud

Energy Resources Conservation and Development Commission

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Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OFJANINE FORREST

- I, Janine Forrest, declare as follows:
 - 1. I am presently employed by Worley Parsons, as an Environmental Engineer.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Worker Safety for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Martinez, CA on May 17th, 2010.

| - Original signed | |
|-------------------|--|
| | |
| Janine Forrest | |

GENESIS SOLAR ENERGY PROJECT WORKER SAFETY OPENING TESTIMONY

I. Name: Scott A Busa, P. Duane McCloud and Janine Forrest

II. Purpose:

Our testimony addresses the subject of Worker Safety associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

Scott A. Busa: I am presently employed at NextEra Energy Resources, and have been for the past 21 years and am presently a Director with that organization. I have over 23 years of experience development, construction, and operation of Electrical Utilities and Power Generation. I prepared or assisted in the preparation of the Worker Safety section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

P. Duane McCloud: I am presently employed at NextEra Energy Resources, LLC., and have been for the past 12 years and am presently a Lead Professional with that organization. I have a B.S. Degree in Chemical Engineering and I have over 28 years of experience in the field of power generation. I prepared or assisted in the preparation of the Worker Safety section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Janine Forrest: I am presently employed at WorleyParsons, and have been for the past 2 years and am presently an Environmental Engineer with that organization. I have an Environmental Engineering Degree majoring in land and water and I have over 6 years of experience in those fields. I prepared or assisted in the preparation of the Waste Management, Worker Safety and Hazardous Materials sections of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

| Exhibit 1 | Application for Certification Vol I & II , dated August 2009, and docketed on August 31, 2009, Section 5.14. |
|------------|--|
| Exhibit 11 | Data Requests Set 1A Responses (1 through 227), dated December 14, 2009, and docketed on December 15, 2009, Responses (226 through 227). |
| Exhibit 51 | Genesis Solar LLC's Proposed Conditions of Certification for Other Resource Areas, dated April 30, 2010, and docketed on May 3, 2010. |

V. Opinion and Conclusions

Genesis Solar LLC, (Genesis) has reviewed the analysis and all conditions of certifications embodied in the SA/DEIS and has participated in workshops. Since Genesis is filing this testimony prior to Staff publishing its Revised Staff Assessment, we have included all areas where our opinion differs from the analysis or recommended Conditions of Certification contained in the SA/DEIS. However, since Genesis and Staff made substantial progress at the Staff Assessment Workshops, in an effort to clarify for the Committee the relatively few areas that may need Committee resolution, we have divided this testimony into the following categories.

 Category I - Modifications to Conditions of Certification that were proposed by Genesis in its comments on the SA/DEIS and that were accepted by Staff at Staff Assessment Workshops

- Category II Modifications that Genesis and Staff agreed after discussion at Staff Assessment Workshops and would be included in the Revised Staff Assessment
- Category III Modifications to Conditions of Certification that Genesis has proposed that Staff has either rejected or needed additional time or information to consider and any disagreement with Staff's analysis and ultimate conclusions

After the Revised Staff Assessment is published Genesis remains confident that if any Worker Safety disputes exist, they will be confined in the third category only.

CATEGORY I GENESIS PROPOSED MODIFICATIONS AGREED BY STAFF

CONDITION OF CERTIFICATION WORKER SAFETY-2, VERIFICATION

Verification: At least 30 days prior to the start of first-fire or commissioning, the project owner shall submit to the CPM for approval a copy of the Project Operations and Maintenance Safety and Health Program. *If one is received,* ‡the project owner shall provide a copy of any letter to the CPM from the Riverside County Fire Department stating the fire department's comments on the Operations Fire Prevention Plan and Emergency Action Plan.

CATEGORY II. GENESIS AND STAFF JOINT REVISED WORKSHOP MODIFICATIONS

CONDITION OF CERTIFICATION WORKER SAFETY-6

Genesis and Staff had productive conversations at the Staff Assessment Workshop regarding the requirement for a secondary point of access for the GSEP as requested by Riverside County Fire Department and required by this Condition of Certification. Genesis expressed concerns over constructing additional roadway. Staff told the Genesis team that it would be working with Riverside County Fire Department to address this concern and the Condition of Certification would likely change. Genesis will review the Revised Staff Assessment and supplement this testimony in its filing on July 17, 2010 regarding the final version.

CATEGORY III. DISPUTED CONDITIONS OF CERTIFICATION, ANALYSIS OR CONCLUSIONS

CONDITION OF CERTIFICATION WORKER SAFETY-4

This condition requires the Owner to pay the Chief Building Official (CBO) for the services of a Safety Monitor to verify that Owner's Construction Safety Supervisor is complying with all OSHA and CEC requirements. It is excessive and redundant to require the Owner to both fund a Construction Safety Supervisor and also fund another position to monitor the Owner's Safety Supervisor. The requirement for the Owner to fund the Safety Monitor should be deleted.

CONDITIONS OF CERTIFICATION WORKER SAFETY-7 AND 8

Genesis understands that Staff will be revising these Conditions of Certification based on discussions with Riverside County and therefore will address in our testimony which will be filed after the Revised Staff Assessment is published.

Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 09-AFC-08

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DECLARATION OFP. Duane McCloud

I, P. Duane McCloud, declare as follows:

- 1. I am presently employed by NextEra Energy Resources, LLC., as a Lead Professional for Construction and Engineering.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- I prepared the attached testimony relating to the Facility Design for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, Florida on May 16, 2010.

P. Duane McCloud

Energy Resources Conservation and Development Commission

In the Matter of:

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DOCKET NO. 09-AFC-08

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DECLARATION OFJared Foster

I, Jared Foster, declare as follows:

- 1. I am presently employed by WorleyParsons, as a Principal Mechanical Engineer.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Facility Design for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on May 18, 2010.

Jared Foster

GENESIS SOLAR ENERGY PROJECT FACILITY DESIGN OPENING TESTIMONY

I. Name:

P. Duane McCloud and Jared Foster

II. Purpose:

Our testimony addresses the subject of the Facility Design associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

P. Duane McCloud: I am presently employed at NextEra Energy Resources, LLC., and have been for the past 12 years and am presently a Lead Professional with that organization. I have a B.S. Degree in Chemical Engineering and I have over 28 years of experience in the field of power generation. I prepared or assisted in the preparation of the Facility Design section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Jared Foster: I am presently employed at WorleyParsons, and have been for the past 4 years and am presently a Principal Mechanical Engineer with that organization. I have a Bachelor Degree in Mechanical Engineering and I have over 8 years of experience in the field of Mechanical Engineering. I prepared or assisted in the preparation of the Facility Design section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

Exhibit 1

Application for Certification Vol I & II, dated August 2009, and docketed on August 31, 2009, Section 3.11.

V. Opinion and Conclusions

We have reviewed the Facility Design section of the Staff Assessment and agree that with incorporation of the Conditions of Certification, the Facility Design section of the Project will not result in significant impacts and will comply with all laws, ordinances, regulations and standards (LORS).

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF WILLIAM N. ORR, Ph.D.

- I, William N. Orr, declare as follows:
 - 1. I am presently an independent paleontological consultant.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Geology and Paleontology for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Eugene, OR on May 15, 2010.

Child A.C.

William N. Orr

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OF MICHAEL TIETZE, PG, CEG

- I, Michael Tietze, declare as follows:
 - 1. I am presently employed by WorleyParsons, as a Senior Hydrogeologist and Location Manager.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - 3. I prepared the attached testimony relating to Geology and Paleontology for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Folsom, CA on May 17, 2010.

Michael Tietze

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OFKenneth Stein

I, Kenneth Stein, declare as follows:

- 1. I am presently employed by NextEra Energy Resourcess, LLC, as an Environmental and Permitting Manager.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Geology and Paleontology for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed in Ft. Lauderdale, FL on May 18, 2010.

Kenneth Stein

GENESIS SOLAR ENERGY PROJECT GEOLOGY AND PALEONTOLOGY OPENING TESTIMONY

I. Name: William N. Orr, Michael Tietze and Kenneth Stein

II. Purpose:

Our testimony addresses the subject of Geology and Paleontology associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

William N. Orr: I am presently an independent consultant, and have been for the past 28 years and am presently a lead paleontologist. I have a Ph.D in Paleontology and I have over 40 years of experience in that field. I prepared or assisted in the preparation of the Geology and Paleontology section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

<u>Michael Tietze</u>: I am presently employed at WorleyParsons, and have been for the past five years and am presently a Senior Hydrogeologist and Location Manager with that organization. I have a Bachelors of Science Degree in Geology and I have over 25 years of experience in the fields of hydrogeology and engineering geology. I prepared or assisted in the preparation of the Soil and Water section and the Geology and Paleontology section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Kenneth Stein: I am presently employed at NextEra Energy Resources, and have been for the past 6 years and am presently an Environmental and Permitting Manager with that organization. I have a B.S Degree in Environmental Science and a Law Degree with a focus in Environmental Law and I have over 20 years of experience in the field of Environmental Permitting. I prepared or assisted in the preparation of the Geology and Paleontology section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

Application for Certification Vol I & II, dated August

Exhibit 1 2009, and docketed on August 31, 2009, Section 5.5,

5.17 and Appendix E.

Exhibit 3 Data Adequacy Supplement, dated October 2009,

and docketed on October 12, 2009.

Data Requests Set 1A Responses (1 through 227),

Exhibit 11 dated December 14, 2009, and docketed on December

15, 2009, Responses 122 through 123.

V. Opinion and Conclusions

We have reviewed the Geology and Paleontology section of the Staff Assessment and agree that with incorporation of the Conditions of Certification, the Genesis Solar Energy Project will not result in significant impacts and will comply with all laws, ordinances, regulations and standards (LORS).

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OFJared Foster

I, Jared Foster, declare as follows:

- 1. I am presently employed by WorleyParsons, as a Principal Mechanical Engineer.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Power Plant Efficiency for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on May 18, 2010.

Jared Foster

Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 09-AFC-08

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DECLARATION OF P. Duane McCloud

I, P. Duane McCloud, declare as follows:

- 1. I am presently employed by NextEra Energy Resources, LLC., as a Lead Professional for Construction and Engineering.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to the Power Plant Efficiency for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, Florida on May 16, 2010.

P. Duane McCloud

GENESIS SOLAR ENERGY PROJECT POWER PLANT EFFICIENCY OPENING TESTIMONY

I. Name: Jared Foster and P. Duane McCloud

II. Purpose:

Our testimony addresses the subject of Power Plant Efficiency associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

<u>Jared Foster:</u> I am presently employed at WorleyParsons, and have been for the past 4 years and am presently a Principal Mechanical Engineer with that organization. I have a Bachelor Degree in Mechanical Engineering and I have over 8 years of experience in the field of Mechanical Engineering. I prepared or assisted in the preparation of the Power Plant Efficiency section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

P. Duane McCloud: I am presently employed at NextEra Energy Resources, LLC., and have been for the past 12 years and am presently a Lead Professional with that organization. I have a B.S. Degree in Chemical Engineering and I have over 28 years of experience in the field of power generation. I prepared or assisted in the preparation of the Power Plant Efficiency section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

Exhibit 1 Application for Certification Vol I & II, dated August 2009, and docketed on August 31, 2009, Section 4.3.

| | Genesis Solar, LLC's Info | rmational Hearing & Site |
|------------|--|--------------------------|
| Exhibit 12 | Visit Presentation, dated _ December 18, 2009. | , and docketed on |

V. Opinion and Conclusions

We have reviewed the Power Plant Efficiency section of the Staff Assessment and agree that no Conditions of Certification are required and that the Power Plant Efficiency Section of the Project will comply with all laws, ordinances, regulations and standards (LORS).

Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 09-AFC-08

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DECLARATION OF P. Duane McCloud

I, P. Duane McCloud, declare as follows:

- 1. I am presently employed by NextEra Energy Resources, LLC., as a Lead Professional for Construction and Engineering.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to the Power Plant Reliability for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, Florida on May 16, 2010.

P. Duane McCloud

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OFJared Foster

- I, Jared Foster, declare as follows:
 - 1. I am presently employed by WorleyParsons, as a Principal Mechanical Engineer.
 - 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
 - I prepared the attached testimony relating to Power Plant Reliability for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
 - 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
 - 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on May 18, 2010.

Jared Foster

GENESIS SOLAR ENERGY PROJECT POWER PLANT RELIABILITY OPENING TESTIMONY

I. Name: P. Duane McCloud and Jared Foster

II. Purpose:

Our testimony addresses the subject of the Power Plant Reliability associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

P. Duane McCloud: I am presently employed at NextEra Energy Resources, LLC., and have been for the past 12 years and am presently a Lead Professional with that organization. I have a B.S. Degree in Chemical Engineering and I have over 28 years of experience in the field of power generation. I prepared or assisted in the preparation of the Power Plant Reliability section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

<u>Jared Foster</u>: I am presently employed at WorleyParsons, and have been for the past 4 years and am presently a Principal Mechanical Engineer with that organization. I have a Bachelor Degree in Mechanical Engineering and I have over 8 years of experience in the field of Mechanical Engineering. I prepared or assisted in the preparation of the Power Plant Efficiency & Reliability sections of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

Exhibit 1 Application for Certification Vol I & II, dated August 2009, and docketed on August 31, 2009, Section 4.3.

| | Genesis Solar, LLC's Inform | ational Hearing & Site |
|------------|-----------------------------|------------------------|
| Exhibit 12 | Visit Presentation, dated | , and docketed on |
| | December 18, 2009. | |

V. Opinion and Conclusions

We have reviewed the Power Plant Reliability section of the Staff Assessment and agree that no Conditions of Certification are required and the Power Plant Reliability section of the Project will comply with all laws, ordinances, regulations and standards (LORS).

Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 09-AFC-08

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DECLARATION OF P. Duane McCloud

I, P. Duane McCloud, declare as follows:

- 1. I am presently employed by NextEra Energy Resources, LLC., as a Lead Professional for Construction and Engineering.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to the Transmission System Engineering for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Juno Beach, Florida on May 16, 2010.

P. Duane McCloud

Energy Resources Conservation and Development Commission

In the Matter of:

DOCKET NO. 09-AFC-08

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DECLARATION OFLin Tun

I, Lin Tun, declare as follows:

- I am presently employed by Nextera Energy Resources, as a Director, Transmission West
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to <u>Transmission System Engineering</u> on the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Houston, Texas on May 19, 2010.

Energy Resources Conservation and Development Commission

In the Matter of:

Application For Certification for the GENESIS SOLAR ENERGY PROJECT

DOCKET NO. 09-AFC-08

DECLARATION OFSteven Richards

I, Steven Richards, declare as follows:

- 1. I am presently employed by WorleyParsons, as an associate electrical engineer.
- 2. A copy of my professional qualifications and experience is included herewith (Attachment A to Testimony) and is incorporated by reference in this Declaration.
- 3. I prepared the attached testimony relating to Transmission System Engineering for the Genesis Solar Energy Project (California Energy Commission Docket Number 09-AFC-08).
- 4. It is my professional opinion that the attached prepared testimony is valid and accurate with respect to issues that it addresses.
- 5. I am personally familiar with the facts and conclusions related in the attached prepared testimony and if called as a witness could testify competently thereto.

Leclare under penalty of perjury, under the laws of the State of California, that the foregoing is true and correct to the best of my knowledge and that this declaration was executed at Sacramento, CA on May 18, 2010.

Steven Richards

GENESIS SOLAR ENERGY PROJECT TRANSMISSION SYSTEM ENGINEERING OPENING TESTIMONY

I. Name: P. Duane McCloud, Steven Richards and Lin Tun

II. Purpose:

Our testimony addresses the subject of the Transmission System Engineering associated with the construction and operation of the Genesis Solar Energy Project (09-AFC-08).

III. Qualifications:

P. Duane McCloud: I am presently employed at NextEra Energy Resources, LLC., and have been for the past 12 years and am presently a Lead Professional with that organization. I have a B.S. Degree in Chemical Engineering and I have over 28 years of experience in the field of power generation. I prepared or assisted in the preparation of the Transmission System Engineering section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

<u>Steven Richards</u>: I am presently employed at WorleyParsons, and have been for the past two and a half years and am presently an associate electrical engineer with that organization. I have a Bachelors Degree in Electrical Engineering and I have over two years of experience in the field of electrical engineering. I prepared or assisted in the preparation of the Facility Description and Location and Transmission and Design Criteria sections of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

Lin Tun: I am presently employed at Nextera Energy, and have been for the past ½ years and am presently a Director with that organization. I have a B.S Degree in Electrical Engineering and I have over 19 years of experience in the field of Electrical Engineering. I prepared or assisted in the preparation of the Transmission System Engineering section of the AFC as well as the post-filing information, data responses, and supplemental filings. A detailed description of my qualifications is contained in the attached resume.

To the best of our knowledge all referenced documents and all of the facts contained in this testimony are true and correct. To the extent this testimony contains opinions, such opinions are our own. We make these statements and provide these opinions freely and under oath for the purpose of constituting sworn testimony in this proceeding.

IV. Exhibits

In addition to this written testimony, we are sponsoring the following exhibits in this proceeding.

Exhibit 1 Application for Certification Vol I & II, dated August

2009, and docketed on August 31, 2009, Section 3.6.

Exhibit 3 Data Adequacy Supplement, dated October 2009,

and docketed on October 12, 2009.

V. Opinion and Conclusions

We have reviewed the Transmission System Engineering section of the Staff Assessment and agree that with incorporation of the Conditions of Certification, the Transmission System Engineering section of the Project will not result in significant impacts and will comply with all laws, ordinances, regulations and standards (LORS).

Attachment A Resumes

Bob Anders, P.E. Senior Supervising Civil Engineer Sacramento

Resume

SUMMARY

Twenty four + years of experience in civil engineering and construction, including power plant design, project management, land development, infrastructure design, master planning, utility design, site development, and construction management. Performed the duties of the Resident Engineer on several large industrial projects.

EXPERIENCE

2008 - Present Senior Supervising Civil Engineer, Sacramento, WorleyParsons, Folsom, California

Responsible for the design of power projects, including civil and structural elements, permitting design work, and conceptual development.

2006 - 2008 Project Manager, Newland Communities, Roseville, California

Responsible for the engineering and construction on a large master planned community. Including planning and permit efforts required. Project included trunk sewer and water lines and complex drainage facilities.

2001 - 2006 Senior Civil Engineer and Civil Engineering Manager, Calpine Corporation, Folsom,

Lead the civil, structural, and design team during the design and construction of multiple cogeneration and combined cycle power projects for Calpine. Was the Resident Engineer on multiple projects, totaling over 1,800 MW. Worked on all phases, including development and permitting, engineering, construction, and operations in support of one of the largest independent power providers in the country.

1998 - 2001 Project Manager, Diamond Creek Partners, Roseville, California

Responsible for the engineering and construction on a large master planned community. Including planning and permit efforts required. Project included trunk sewer and water lines and complex drainage facilities.

1993 - 1998 Engineering Manager, Arctic Slope Regional Corporation, Sacramento, California

Responsible for of all of the engineering and construction projects for the operations in the lower 48 states. Projects included design build and traditional construction for all branches of the Federal Government. Oversaw proposals, including estimates for the work.

1990 - 1993 Project Manager, RMB Reality, Roseville, California

Responsible for the engineering and construction on a large master planned community. Including planning and permit efforts required. Project included trunk sewer and water lines and complex drainage facilities.

1984 - 1990 Project Manager/Engineer/Estimator, Granite Construction Company, Sacramento, California

Roles included estimating, project engineer, and project manager of a wide range of heavy civil projects including mass grading, canals, trunk water and sewer lines, treatment facilities, bridges, dams, pumping stations, and infrastructure development.



Bob Anders, P.E. Senior Supervising Civil Engineer Sacramento

EDUCATION

BS (Civil Engineering), University of California, Berkeley, 1984

REGISTRATIONS/AFFILIATIONS

Registered Professional Engineer - California - License No. C46483

Lee Roger Anderson Senior Visual Analyst

Education

Master of Landscape Architecture Iowa State University, Ames, Iowa

B.S. in Landscape Architecture Iowa State University, Ames, Iowa

Relevant Experience

Lee Roger Anderson has more than 37 years experience in visual resource analysis, visual resource management, and environmental planning, and more than 42 years experience in site planning, master planning, recreation planning, and landscape architecture. In addition he possesses vast experience supporting:

- Applications For Certification, (AFC); Visual Resources
- Environmental Impact Reports, (EIR); Visual Resources
- Environmental Impact Statements, (EIS); Visual Resources

He has also served a host of regulatory agencies including, but not limited to: Federal Energy Regulatory Commission (FERC); USDA Forest Service; USDI Bureau of Land Management; California Public Utilities Commission (CPUC); and California Energy Commission (CEC).

Representative Projects

- Genesis Solar Energy Project AFC #09-AFC-8. Visual resource assessment and computerized visual simulations for new solar farm on 1,800 acres. Riverside County, CA.
- Abengoa Mojave Solar Power Plant Project AFC #09-AFC-5. Visual resource assessment and computerized visual simulations for new solar farm on 1,765 acre. San Bernardino Co, CA.
- Alta Oak Creek Wind Energy Project EIR. Visual resource assessment and computerized visual simulations for 350 new wind turbine generators. Kern County, CA.
- Pacific Wind Energy Project EIR. Visual resource assessment for up to 250 new wind turbine generators. Kern County, CA.

- Tehachapi Renewable Transmission Project, Segments 4-11 EIR/EIS. (TRTP 4-11) Visual resource assessment and computerized visual simulations. Tehachapi Wind Resource Area to Mira Loma Substation. Kern, Los Angeles, and San Bernardino Counties, CA.
- Antelope Transmission Project, Segments 2 & 3 EIR (TRTP 2-3). Visual resource assessment and computerized visual simulations. Kern and Los Angeles Counties, CA.
- Antelope-Pardee 500kV Transmission Project EIR/EIS (TRTP 1). Visual resource assessment and computerized visual simulations. Lancaster to Santa Clarita, LA County, CA.
- Riverway Substation Project visual resource assessment and computerized visual simulations for a Mitigated Negative Declaration. Visalia, Tulare County, CA.
- Lompoc Wind Energy Project EIR. Visual resource assessment and computerized visual simulations for 90 new wind turbine generators. Santa Barbara County, CA.
- Dillon Wind Energy Project EIR. Visual resource assessment and computerized visual simulations for 45 new wind turbine generators. Palm Springs and Riverside County, CA.
- Liberty XXIII Renewable Energy Power Plant EIR. Visual resource assessment and computerized visual simulations for new bio-fuel power plant. City of Banning, CA.
- Lake Elsinore Advanced Pump Storage Transmission Project EIR (LEAPS). Visual resource assessment and computerized visual simulations. Orange County, CA.
- Amendment to CEC License for Blythe Energy Transmission Line Project. Land use study, visual resource assessment, visual simulations. Blythe to Julian Hinds, CA.
- Oil and Gas Environmental Impact Statement, Scenic Quality and Recreation Resources, with complete GIS Analysis, Los Padres National Forest, Santa Barbara, CA.
- AT&T Fiber Optic Cable Project, EA and Initial Study, at Shasta Lake National Recreation Area and in Castle Crags State Park, Shasta County, California.
- EIS & EIR for Celeron/All American and Getty Pipeline Projects, from Santa Barbara, CA to Freeport, TX., for California State Lands Commission and USDI-BLM.
- Construction monitoring and mitigation compliance monitoring of the All American Pipeline, in Los Padres NF and Gaviota St Park, Santa Barbara County, CA.

EXPERIENCE SUMMARY

Prepares large controversial environmental impact statements and other NEPA documentation, for a variety of public and private clients, including BLM, a primary federal player in the field of renewable energy and transmission.

Manages the NEPA process to develop focused, analytically correct and well-organized environmental documents for numerous agencies. Assigns and supervises appropriate technical staff for each project. Develops environmental planning strategies for projects including siting, scoping, regulatory agency coordination, and mitigation.

Ensures compliance with agency-specific environmental requirements and regulations for numerous environmental laws, executive orders, and policies such as the Endangered Species Act (ESA), Clean Water Act (CWA), Clean Air Act (CAA), Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and others. Ensures liaison and effective and affirmative communication among lead agencies, cooperating agencies, and consultative agencies at appropriate points in the planning and documentation process. Evaluates permitting needs for energy, water, transportation and utility projects.

EDUCATION

MS, Environmental Policy and Management, University of Denver, 1992 BS, Agricultural Economics, Colorado State University, 1984

TRAINING

Utility Scale Solar- In Practice- EUCI February 2009
Supervising in the Matrix, May 2009 (Tetra Tech EC)
Project Management 101, 2008 (Tetra Tech EC)
Project Management 201, 2008 (Tetra Tech EC)
National Safety Council Defensive Driving Course, Tetra Tech EC, 2008
Wind Energy 201, Tetra Tech EC, 2008

CORPORATION PROJECT EXPERIENCE

Energy Projects

Project Manager

Genesis Solar Energy Project, Mojave Desert, California

Ms. Bernhardt is the project manager for the up-front permitting efforts of a large utility scale 250 MW concentrated solar thermal project near Blythe, California. The project is located on BLM property on approximately 4000 acres. Ms. Bernhardt managed the BLM Right of Way application process, temporary use access for meteorological towers and test wells, and the Application for Certification (AFC) process with the California Energy Commission. Ms. Bernhardt managed the intensive biological studies and cultural resource studies to meet the requirements of both the BLM and the CEC. An AFC is expected to be submitted to the CEC in September 2009. Ms. Bernhardt manages a project team of approximately 20 resource specialists in all disciplines and six sub consultants performing varied related tasks.

Project Manager

Solar Siting/Fatal Flaw Environmental Analysis, San Luis Valley, CO

Developed a Solar Siting/Fatal Flaw Environmental Analysis for a confidential client in the San Luis Valley of Colorado. The effort consisted of a GIS screening of land use, type, ownership, location of



Senior Environmental Planner/Project Manager

transmission and gas lines, wetland and vegetation species, surface water, groundwater, topography, slope and NREL data for solar radiation. When the client identified a specific parcel for potential location of a CSP facility, conducted a site visit to field verify the information, and further checked farm and ranch management practices, hazardous materials issues, community and neighborhood issues, as well as biological issues, mostly related to wetlands and avian species. Investigated restrictions related to an existing Conservation Easement on the ranch and used information gathered in the decision-making process for potential land purchase.

Project Manager

Confidential Wind Energy Project, South Dakota

Managed preliminary permitting and baseline field studies for the development of a wind farm and transmission line in Hand County, South Dakota. Recent baseline work included a wetland delineation and a cultural Class III survey. Construction of the 30 MW facility is anticipated to begin in 2009, with final environmental permits, being managed and produced by Ms. Bernhardt.

Environmental Project Manager

Cedar Point Windfarm, Renewable Energy Systems, Limon, Colorado

Manager for the environmental permitting of a large proposed 300 MW windfarm and associated transmission line in eastern Colorado. Applications for development and special use permits were filed with three counties where the turbines and transmission lines will be located. The applications included field work and reports on biology and wetlands and cultural resources. Approval to proceed with the project has been granted by the Board of County Commissioners in all three of the counties.

Project/Task Manager

Solar 1 and 2 Environmental Permitting, Stirling Energy Systems, CA

Project Manager for the siting and environmental permitting of two large solar development projects in California located on BLM property. Responsible for the early coordination of the Right-of-Way Applications, Environmental Impact Reports and NEPA coordination with BLM and the Applications for Certifications with the California Energy Commission. Project management tasks included coordination of California and Colorado URS staff, agency meetings, documentation process and development as well as scheduling and budget control. Once permitted and operational, each site is expected to produce approximately 300 MW.

Environmental Project Manager

Shell Oil Shale Research, Development and Demonstration Projects Environmental Assessment, BLM, Meeker, CO

Environmental Project Manager for a third party EA assessing the impacts of oil shale development in northwest Colorado on BLM land. In this role, met extensively with BLM resource specialists, and a consortium of experts in the field of oil shale extraction. Additionally, Coordinated the work of URS experts in biology, geology, hydrology, and air quality. Coordinated the development of responses for the extensive comments written by various activist groups. The project resulted in a Finding of No Significant Impact.

Deputy Project Manager

Red Cliff Mine EIS, BLM, Grand Junction Field Office, Mack, CO

Deputy Project Manager for the development of a third party EIS for the proposed Red Cliff Mine in northwestern Colorado. The preliminary DEIS was issued in February 2008 and is currently in review with BLM. The document analyzes the environmental consequences of the development of a new underground coal mine as proposed by CAM-Colorado, LLC. The ROW and use of public BLM lands will be necessary to support the operation. Impacts on private as well as federal lands are disclosed and



analyzed. Two of the most difficult issues surround the need to transport the coal from the mine via a new railroad line, and the need to transmit power through new transmission lines to the mine site.

Project Manager

Roaring Fork Valley Natural Gas Pipeline Environmental Permitting, Kinder Morgan, Pitkin County, CO

Project manager for an environmental permitting project for Kinder Morgan. The project included the tasks of a stormwater management plan and NPDES, wetland delineation and report, preparation of Nationwide permit 12, cultural resource evaluation and report, noxious weed survey and report, and preparation of a floodplain permit. Coordinated the consultation efforts with the corresponding regulatory agencies including the State Historic Preservation Office, the Colorado Division of Wildlife, and the US Army Corps of Engineers.

Water Resources Projects

Environmental Project Manager

Fountain Creek Watershed Study, US Army Corps of Engineers, CO

Environmental Project Manager for a comprehensive watershed study for the Fountain Creek Watershed primarily in El Paso County Colorado. The study documented the existing conditions and identified problems and opportunities for restoration projects throughout the watershed. The study included intensive fieldwork in the areas of wetlands and aquatic resources as well as literature and document review of soils, hazardous materials, water quality, wildlife, and planned developments in the 927 square mile area.

Project Manager

Zion National Park EA, National Park Service, UT

Served as the project manager for an environmental assessment in Zion National Park, Channel Stabilization of the Sentinel Slide Area. A landslide occurred in Zion National Park causing an obstruction in the North Fork of the Virgin River. This action resulted in the river putting pressure upon the edges of the adjacent road (Floor of the Valley Road), causing substantial damage to the road. Since then, several floods have repeatedly washed out the road, even after emergency repairs were made. Because the river became extremely narrow between the landslide and the road, the velocity and volume of water against the retaining wall was extreme.

The environmental assessment examined the possibility of reducing the river's impact on the retaining wall by modifying or stabilizing the stream channel in this location. The preferred alternative involved removing a portion of the toe of the landslide, with the addition of grade control structures placed in the stream. Individual studies were done on landslide and soils stability as well as hydraulic studies that were summarized in the EA document. Following the public comment period, a Finding of No Significant Impact was issued.

Task Manager

Central Utah Water Project Environmental Impact Statement (EIS), Utah Water Conservancy District

Task Manager for physical and land resources on the Central Utah Water Project EIS. In this capacity, organized staff efforts and developed a variety of specialist plans and work plans, as well as writing of the EIS. The project included a complicated series of new reservoirs and canal systems, partially on Indian tribal land. Responsible for developing significance criteria, methodologies for analysis, and actual impact analyses for issues falling under the physical and land resources category. These categories included air, noise, soils, mineral and energy resources, wilderness areas, hazardous wastes, land use, and



agriculture. Visited the Utah area and conducted interviews with many local officials, affected public, and Ute Indians to verify community interests and concerns.

Project Manager

Groundwater Protection Plan, Town of Elizabeth, CO

Developed a Groundwater Protection Plan for the Town of Elizabeth, Colorado. The plan was written in conformance with requirements of the Colorado Department of Health to ensure protection of the town's water supply. Met frequently with the town manager and the utility director to assess the needs and problems of the community and their wells. Land use was mapped around the two existing wells, and potential sources of contamination were identified. Produced recommendations in the final Groundwater Protection Plan, which included zoning prohibitions with the elimination of septic tanks and the use of road salts within a 400-foot radius of both wells.

Task Manager

Environmental Review of Jimmy Camp Creek, City of Colorado Springs, CO

Prepared an environmental review of the Jimmy Camp Creek site where the City of Colorado Springs is proposing a water supply reservoir to be located. The review consisted of field work and research on existing environmental documentation such as wildlife habitat, threatened and endangered species in the area, vegetation, cultural resources, and wetlands. The report described the necessary environmental requirements and permits that will need to be met as the reservoir plans are developed.

Environmental Coordinator

Standley Lake EA, U.S. Department of Energy and the City of Westminster, CO

Environmental Coordinator for the Standley Lake Diversion Project. The intent of the project was to physically isolate Standley Lake (a drinking water supply for 200,000 people) from the Rocky Flats Plant. Wrote and coordinated much of the original EA for the project and obtained the necessary environmental permits. Developed community relations tools such as fact sheets and slide shows and facilitated public meetings for the client. Involved in meetings with the various affected agencies to resolve some of the more complicated issues involving ownership and operational responsibilities of the diversion project.

Department of Defense Projects

Environmental Compliance Assessment and Management Program, Travis Air Force Base (AFB), Sacramento, CA

Reviewed and audited natural and cultural resource management practices at the Travis AFB as part of a multi-disciplinary team. Spent a week interviewing key members of the organization, as well as staff performing the work. Numerous documents and procedures such as the Integrated Natural Resources Management Plan and the Cultural Resources Management Plan were reviewed. With an understanding of Air Force regulations and AFIs, was able to identify situations that were out of compliance. These issues were compiled with the results of the other auditors, and presented to senior officials at Travis AFB.

Trainer/Teacher at Buckley Air Force Base, Aurora, CO

Developed several classroom training programs for Buckley AFB, including natural and cultural resources training, and National Environmental Policy Act (NEPA)/Environmental Impact Assessment Program (EIAP) training. For four years, taught these classes on a quarterly basis to diverse audiences, including proponents and engineers associated with the building of infrastructure projects, and staff in the Environmental Flight. Received high ratings in evaluations from the Base for the presentation material developed and the ability to teach the subject matter.



Senior Environmental Planner/Project Manager

Environmental Functional Review Team for NASA, Johnston Space Center

As a part of a multi-disciplinary URS team, reviewed NASA environmental records and procedures. Responsible for auditing the NASA practices in the areas of NEPA, cultural and other natural environmental issues. Regulatory and policy noncompliance issues that were discovered were written up as formal findings, and presented to NASA staff. Also prepared recommendations for management changes that would help the center to be more proactive in the area of natural resource planning.

Program Manager, U.S. Air Force Academy (AFA), Colorado Springs, CO

Successfully procured, managed and implemented approximately \$1M in environmental work per year for 5 years with the AFA under an IDIQ contract. Projects included environmental assessments (EAs) under the National Environmental Policy Act (NEPA), asbestos and lead-based paint inventories, long-term groundwater monitoring program, biosolids management, architectural inventory, and RCRA hazardous waste management programs.

On-Site NEPA Coordinator, U.S. Air Force Academy (AFA), Colorado Springs, CO

During portions of 2001/2002, performed as the on-site NEPA coordinator at the Academy. The Academy went through a staffing transition while changing much of their staff to a private contractor. During that time, provided on-site management of their NEPA process and prepared numerous EAs and Categorical Exclusions.

Project Manager

Integrated Natural Resources Management Plan Update (INRMP) and Environmental Assessment (EA), U.S. Air Force Academy (AFA), Colorado Springs, CO

Project Manager for the 2001 update to the AFA INRMP and associated EA. The INRMP provides long-range guidance for managing the AFA's natural resources during the next 10 years. The plan represents a starting point from which the natural resources management program will move toward ecosystem management. The INRMP provides a broad framework with goals and strategies for improving communication and outreach with the base community and beyond, obtaining scientific data to identify desired future natural resource conditions, and acquiring the technological tools to enable a dynamic approach to managing the ecosystem components. Responsible for agency coordination with CDOW, USFW, and others including the US Forest Service. An EA was developed in conjunction with the INRMP for the approval of conservation projects identified during the planning process.

Project Manager

Introductory Flight Training EA, U.S. Air Force Academy (AFA), Colorado Springs, CO Project Manager for the controversial Introductory Flight Training Program at the AFA. The AFA proposed to reintroduce 120 flights per day to their introductory flight training program, a program that had been temporarily suspended. This project involved many complex issues ranging from flight pattern technicalities and legal avigation easements to irate and well-organized neighborhood groups opposing flights originating from the AFA based on noise issues. Organized public meetings, agency meetings, and internal meetings with various groups at the AFA including pilot operations, civil engineering and public affairs. A Finding of No Significant Impact (FONSI) was signed by the AFA superintendent; additional mitigation measures were developed to reduce the noise for certain neighborhoods.

Task Manager

Utilities Privatization, U.S. Air Force Academy (AFA) and Peterson Air Force Base, Colorado Springs, CO

Task Manager in charge of developing environmental assessments for several Air Force Bases in Colorado to address the issue of utility privatization. A national Air Force initiative required all bases to consider privatizing the utilities on base, rather than having base personnel run the utilities. Prepared EAs



for the Air Force Academy and Peterson Air Force Base. The EAs document that the change in ownership of the utilities does not negatively impact the natural or human environment at either of these bases.

Transportation Projects

Sri Lanka Highway Development, Millennium Challenge Corporation, USACE, Sri Lanka
Served as an environmental expert in the analysis of highway systems in Sri Lanka. Spent 3 weeks in
country assessing the condition of certain highways, identifying potential environmental and social
impacts that could occur with the widening or improving of highways. Worked with a team of engineers
and a translator, to understand local environmental laws and World Bank standards, and to thoroughly
understand cultural issues. Prepared reports for the Millennium Challenge Corporation and the US Army
Corps of Engineers, who held the contract. A team of experts including Ms. Bernhardt presented the
information in Washington D.C. so that decisions could be made by government officials on potential
funding for the country and associated infrastructure projects.

Environmental Task Leader

US 36 Environmental Impact Statement, Denver, CO

Environmental Task Leader for this complex EIS along a 25-mile corridor that included an existing highway alignment (US 36 between Denver and Boulder) and an existing railroad (Burlington Northern Santa Fe) alignment. FHWA and RTD have jointly initiated the project to prepare an Environmental Impact Statement (EIS) to identify multi-modal transportation improvements between Denver and Boulder. The DEIS was prepared to evaluate impacts to the environment and determine means to avoid, minimize, or mitigate impacts from the proposed action and alternatives to that action.

Managed the studies, staff and subconsultants for all environmental disciplines: a total of 18 subconsultants are participating in the work as well.

Alamosa Mobility Study, Colorado Department of Transportation, Alamosa, CO

The purpose of this study was to provide a vision for the SH 160 corridor through an Environmental Overview, a technical analysis and public outreach. Coordinated the environmental research that was done to provide information for the major agency stakeholders so that decisions on the future of the corridor could be made. The Environmental Overview identified environmental elements that were critical in the area, with emphasis on areas of constraint. The Rio Grande and two nearby wildlife refuges create several barriers to transportation systems. Assisted CDOT and FHWA in a determination of which NEPA process could be used to carry out the 10- year short-term options that were identified as the preferred options.

I-25 Improvements Project – El Paso County EA, Colorado Department of Transportation, Colorado Springs, CO

Managed the EA portion of this complex project over a period of four years. The project includes 26 linear miles of interstate and improvements to five interchanges. Managed six subconsultants and a variety of technical specialists. Compiled and prepared the actual documentation, which is now in agency review. Public review is expected in October 2003. A total of 47 public meetings have already been held, with the most contentious issue being noise and noise mitigation, and the issue of cumulative impacts.

Parker Road/I-225 EIS, Colorado Department of Transportation, Denver, CO

Managed portions of the EIS for the Parker/I-225 Interchange in Denver, Colorado. Coordinated technical staff and oversaw data collection, research, and technical writing. Analyzed impacts to the environment from the new interchange, which included adjacent parks and open space land (Cherry Creek State Park). Additionally, managed communication with the cooperating agencies involved in the project, and assisted



with a series of public involvement sessions, community interest group meetings, public meetings, and public hearings. Resolved issues related to the presence of prairie dogs and their habitat in the vicinity of the construction project.

I-70 Major Investment Study, Colorado Department of Transportation, Denver, CO

Worked with the Colorado Department of Transportation to prepare a Major Investment Study (MIS) of the I-70 West Corridor; a transportation link critical to the economy of Colorado, and the mountain communities along its way. Involvement with the project included development of environmental baseline data for the entire study area, evaluation of technical alternatives as they related to the environment, and integration of public and agency concerns into the recommended strategies. This project had an extensive public involvement process. Served as a workshop facilitator for large group meetings held in the local communities. Facilitated groups with extremely diverse interests including general citizens, the ski industry, statewide elected officials, the gaming industry, the trucking industry, tourists, property owners, and the media. Solutions were being identified that were sensitive to the balance among mobility, quality of life, environmental concerns, and economic realities.

Environmental Coordinator

South Powers Environmental Documentation, Colorado Department of Transportation, Colorado Springs, CO

Environmental Coordinator for the South Powers project in Colorado Springs. A Baseline Condition Report was prepared describing the environmental and socioeconomic condition of the area being considered for the extension of South Powers Boulevard. The intent of the project is to extend South Powers from its southern terminus (Mesa Ridge) to some connecting point on I-25, a distance of approximately 8 to 10 miles. The project has been controversial with the public; involved with public meetings and individual meetings with property owners.

Deputy Project Manager

Southwest Corridor Light Rail Transit EIS, Regional Transportation District, Denver, CO Deputy Project Manager for the Southwest Corridor Light Rail EIS, an 8-mile-long system on the southwest side of Denver. The Southwest Corridor Light Rail Transit (LRT) was developed by Denver's Regional Transportation District (RTD). Land use, socioeconomics, and environmental justice issues were carefully analyzed and considered. Oversaw the technical specialists on the project including the subcontractor who prepared the complete air quality conformity analysis.

Public Involvement

Region III EPA, Superfund Community Relations, U.S. Environmental Protection Agency
Assisted with community relations activities for Region VIII EPA including public meetings and
workshops, preparing community relations plans, interviewing members of the public and documenting
concerns, writing and distributing fact sheets and updates on the sites, producing slide and graphical
presentations, writing proposed plans for remediation, and addressing public comments in responsiveness
summaries.

Superfund Community Relations, U.S. Environmental Protection Agency, MT

Spent 6 months at a large Superfund site in Montana talking with hundreds of residents in the local community. Information about the Superfund process was explained carefully, and residential concerns were documented. Access agreements were obtained from affected property owners for soil and water samples that needed to be collected from their yards. The community relations strategy greatly reduced previous hostility problems that occurred when trying to sample and test hazardous soil and groundwater conditions in the community.



Superfund Community Relations, U.S. Environmental Protection Agency, Rocky Mountain Arsenal, CO

Obtained substantial experience in dealing with hostile members of the public during cleanup activities at the Rocky Mountain Arsenal. Met with local residents who were concerned about the cleanup activities and their health and prepared a report documenting their concerns. Wrote a community relations strategy that was presented to the EPA. Dealing with public concerns helped to reduce the tension between the public and the governmental agencies and allowed the project to progress.

Superfund Community Relations, U.S. Environmental Protection Agency, Lowry Landfill Site, CO Managed the production of an 18-minute professional video of the Lowry Landfill Superfund Site. The video contained background on the site, an explanation of the Superfund process, and a vision for future Superfund activities. The video has been used extensively by schools and public interest groups and has received video film industry awards.

Community Involvement Highlights

Facilitate community meetings, scoping meetings, and interdisciplinary team meetings:

- Develop fact sheets and proposed plans for the public that are skillfully written to convey complex technical information to the general public
- Meet with property owners and other affected public to discuss concerns and identify solutions
- Build cooperative relationships with public and agencies based on communication with trust and respect
- Facilitate large group sessions consisting of individuals with diverse perspectives-successfully achieve conflict resolution

PREVIOUS EXPERIENCE

Senior Project Manager, Environmental Planner, 2003-2008 URS Corporation

Environmental Planner, 1989-2003 CH2M Hill

Jr. Environmental Planner, 1984-1989 Camp Dresser and McKee/ICF Kaiser

TECHNICAL EXPERTISE

LANGUAGE SKILLS

Knowledge Level:

PROFESSIONAL REFERENCES

RELATED COMPANY INFORMATION

Payroll Number: 525151 Employment Status: Full Preferred First Name: Tricia Office Location: Denver



Ms. Tricia A. Bernhardt Senior Environmental Planner/Project Manager

Hire Date: 9/22/08

Years with Other Firms: 24 Years with Current Firm: 0 Total Years Experience: 24

Supervisor: Carol L. Rieger, Senior Project Manager/Principal Geologist

Office Phone: Cell Phone:

Fax:

E-mail Address: tricia.bernhardt@tetratech.com Other E-mail Address (if any): tricia_jon@msn.com

Resume Last Revised: 2009-12-08



EXPERIENCE SUMMARY

Mr. Booth has over 34 years of experience in the field of air quality engineering and environmental pollution control consulting. He has served as a project manager and team member on a wide variety of air, water, and solid and hazardous waste environmental and regulatory permitting projects for the energy and industrial sectors throughout California and the nation. He has been involved in numerous projects for the utility and independent power producer sectors, as well as the pulp and paper, wood products, and minerals industries. He has extensive experience in the areas of air quality related to minor and major new source permitting, NSR and PSD permitting, RACT-BACT-MACT-LAER determinations, cost effectiveness evaluations, Title IV/V permitting, air toxics evaluations, air dispersion modeling, health risk assessment, emissions inventory preparation (criteria and toxic pollutants, and greenhouse gases), regulatory compliance, rule development, and impact analysis. He has conducted historical ambient air quality assessments; background air quality assessments; detailed emissions calculations for criteria and toxic pollutants; detailed impacts analysis addressing project impacts to NAAQS, SAAQS, PSD increments, Class I area impacts, visibility, regional haze, and deposition; in-depth regulatory compliance analysis; mitigation assessment; and multiple pathway health risk assessments. In addition, he has prepared a wide range of environmental and regulatory documents such as RMP's, SPCC's, SWPPP's, Phase I ASTM site assessments, multi-media environmental compliance audits, acquisition due diligence documents, critical issues analysis documents, and CEQA/NEPA documents.

EDUCATION

Various Coursework, Environmental Impact Analysis, California State University, 1981 BA, Natural Science, California State University, 1976 AA, Pre-Engineering, American River College, 1969

TRAINING

Project Management Training Course: Level 100, October 2001 (TtEC)
Project Management Training Course: Level 200, February 2002 (TtEC)
Project Management Training Course, Project Management Institute, 1996.

Sales Training Course: March 2002 (TtEC)

Loss Control Course: Det Norske Veritas, March 2002 (TtEC)

Supervisory Training Course: Supervising in the Matrix, November 2002 (TtEC)

ASTM Site Assessment and Transaction Screen: Re-certification, February 2003 (TtEC)

CORPORATION PROJECT EXPERIENCE

RECENT PROJECT MANAGEMENT EXPERIENCE

Liberty Energy, Inc., Liberty V, XX, and XXIII, Air Quality Technical Assessments and Permitting Applications, Southern California Sites

Serving as current project manager for the air quality and public health permitting and analysis for three (3) bio-solids power plants rated at 15 to 22 MW each, located in the southern California (Riverside, Imperial, and Kern Counties). Each facility is subject to CEQA, as such, TTECl is preparing the air quality and public health technical assessments for inclusion in the CEQA documents, as well as the air quality permitting applications and public health (risk assessments) for each facility. Mr. Booth is currently responsible for the preparation of the air quality and public health analyses for each plant.



Enpower Corp., LM6000 Turbine Project, Wadham Energy Facility, Williams, CA.

Serving as the current project manager for the WELP-LM6000 project located in the northern portion of the Central Valley of California. The LM6000 project is a 46 MW modification consisting of a simple cycle gas turbine addition at the existing Wadham Energy facility. Mr. Booth is responsible for the air quality and public health analyses for the project, and the management of other sub-contractors involved in the environmental analysis for the project.

Calpine Corporation, Inland Empire Energy Center Application for Certification, Calpine IEEC, Romoland, CA

Served as interim project manager for the 670 MW combined-cycle power plant facility proposed to be located in southwest Riverside County, CA. Prepared the hazardous materials, hazardous waste, and worker safety sections of the AFC. The AFC document was prepared under the direction of Foster Wheeler Environmental, and was submitted to the CEC on August 17, 2001. The project was deemed data adequate on 12-19-01, and is currently under construction. Mr. Booth is currently serving as the project manager for the construction monitoring tasks for biology, cultural, paleontological, and air quality per the requirements of the California Energy Commission conditions of certification.

City of Rialto-Municipal Airport Closure, Rialto, CA

Mr. Booth served as the TtEC project manager for the extensive series of environmental site assessments undertaken for the Rialto Municipal Airport closure and sale. The site assessments included detailed historical assessments, site surveys, regulatory agency research, and sampling and analysis programs. The project team consisted of a mix of inter-company staff as well as subcontractors. The assessments were conducted as part of the federally approved closure of the airport facilities in anticipation of future residential and commercial development. The project included assessments of both airport and non-airport adjacent properties.

Enpower Corporation, Oildale Energy and Wadham Energy Plants, Bakersfield and Williams, CA Mr. Booth is presently the project manager for the environmental services contracts for Enpower Corporation's California energy facilities located in Bakersfield and Williams. These facilities consist of a 50 MW gas turbine facility and 20 MW biomass facility. Current services being provided consist of a wide range of regulatory support and compliance tasks, federal MACT compliance, emissions inventory preparation, monitoring, reporting, and recordkeeping, environmental auditing, Title V permitting, etc.

RECENT PROJECT EXPERIENCE

BPAE-Watson Cogeneration Expansion Project, Carson, Ca.

Co-authored the air quality and public health sections of the Application for Certification (AFC) for the new GE 7FA turbine/HRSG expansion at the Watson Cogeneration power plant, and co-authored the air application for the project for submittal to the South Coast AQMD. The Watson project is a single 85 MW combined cycle turbine/HRSG. The air quality sections contained an in-depth analysis of existing and background air quality, BACT analysis, emissions quantification for a wide variety of operational scenarios, hazardous pollutant quantification, regulatory compliance analysis, and mitigation (emission reduction credit) analysis. The public health sections of the AFC, and the permitting applications for both projects, contained a detailed analysis of hazardous pollutant emissions, exposure assessment, and complete multiple-pathway cancer risk analysis. Analyses for acute and chronic health affects were prepared as well as a population cancer burden analysis.

Gateway West Transmission Line EIS Project, Idaho Power/PacifiCorp, Wyoming and Idaho Prepared the air quality analysis for the transmission line EIS which included; the analysis of the regional setting, project definition, project regulatory compliance analysis, project emissions for both construction



and operations phases, conformity analysis, and cumulative impacts analysis for operation of the transmission line.

Alta Vista Solar Project, eSolar, Lancaster, Ca.

Authored the air quality and public health sections of the Application for Certification (AFC) for an 80 MW solar power plant, and prepared the air application for submittal to the Mohave Desert AQMD for the project. The Alta Vista project is an 80 MW heliostat/mirror solar project. The air quality sections contained an in-depth analysis of existing and background air quality, BACT analysis, emissions quantification for the identified operational scenarios, hazardous pollutant quantification, regulatory compliance analysis, and mitigation (emission reduction credit) analysis. The public health sections of the AFC, and the permitting applications for both projects, contained a detailed analysis of hazardous pollutant emissions, exposure assessment, and complete multiple-pathway cancer risk analysis. Analyses for acute and chronic health affects were prepared as well as a population cancer burden analysis.

MMC Energy, Chula Vista and Escondido Turbine Upgrade Projects, Chula Vista and Escondido, Ca.

Co-authored the air quality and public health sections of the Application for Certification (AFC) for two 46 MW simple cycle turbines upgrades at the Chula Vista power plant, and co-authored the air applications for both Chula Vista and Escondido upgrade projects. The Escondido project is a single 46 MW simple cycle turbine upgrade (non-CEC). The air quality sections contained an in-depth analysis of existing and background air quality, BACT analysis, emissions quantification for a wide variety of operational scenarios, hazardous pollutant quantification, regulatory compliance analysis, and mitigation (emission reduction credit) analysis. The public health sections of the AFC, and the permitting applications for both projects, contained a detailed analysis of hazardous pollutant emissions, exposure assessment, and complete multiple-pathway cancer risk analysis. Analyses for acute and chronic health affects were prepared as well as a population cancer burden analysis.

Edison Mission Energy, Walnut Energy Center and Sun Valley Energy Projects, Applications for Certification, City of Industry and Sun City, CA.

Co-authored the air quality and public health sections of the Applications for Certification (AFC) for two 500 MW simple cycle power plants to be located within the jurisdiction of the South Coast Air Quality Management District (southern California). The air quality sections contained an in-depth analysis of existing and background air quality, BACT analysis, emissions quantification for a wide variety of operational scenarios, hazardous pollutant quantification, regulatory compliance analysis, and mitigation (emission reduction credit) analysis. The public health sections of the AFCs contained a detailed analysis of hazardous pollutant emissions, exposure assessment, and complete multiple-pathway cancer risk analysis. Analyses for acute and chronic health affects were prepared as well as a population cancer burden analysis.

PREVIOUS EXPERIENCE

Calpine Corporation, Russell City Energy Center Application for Certification, Hayward, CA Co-authored the California Energy Commission Application for Certification (AFC) air quality and public health sections, and the Bay Area AQMD permit application package, for the proposed 600 MW combined cycle power plant facility to be located near Hayward, CA., in the east San Francisco Bay region. The documents contained the following types of analyses: (1) historical ambient air quality assessment, (2) establishment of background air quality for the project, (3) detailed emissions calculations for criteria and toxic pollutants, (4) "top-down" best available control technology analysis, (5) detailed impacts analysis addressing project impacts to NAAQS, SAAQS, PSD increments, Class I area impacts,



visibility, regional haze, and deposition, (6) in-depth regulatory compliance analysis, (7) mitigation assessment, and (8) multiple pathway health risk assessment.

Calpine Corporation, Vineyard Energy Center NOI Application, Vineyard, UT

Co-authored the Utah DEQ-Air Division permit application package, for the proposed 978 MW combined cycle power plant facility to be located near Vineyard UT., northwest of the Orem-Provo urban area. The document contained the following types of analyses: (1) historical ambient air quality assessment, (2) establishment of background air quality for the project, (3) detailed emissions calculations for criteria and toxic pollutants, (4) "top-down" best available control technology analysis, (5) detailed impacts analysis addressing project impacts to NAAQS, SAAQS, PSD increments, Class I area impacts, visibility, regional haze, and deposition, (6) in-depth regulatory compliance analysis, (7) mitigation assessment, and (8) multiple pathway health risk assessment.

US Forest Service, Sioux Ranger District Oil and Gas Leasing EIS, South Dakota

Primary author of the air quality affected environment and environmental consequence analyses for the proposed oil and gas leases within the Sioux Ranger District, in Harding County, South Dakota. The EIS, as currently structured, is a multi-disciplinary document which addresses the Forest Service concerns surrounding future oil and gas leases on their managed units within the district. The air quality portion of the EIS includes a detailed analysis of the regional climate and weather data, emissions inventory, background air quality, and emissions estimates for the various activities associated with oil and gas exploration and development. The analysis considers direct and indirect emissions impacts, and cumulative impacts, as well as addressing consistency with the established Forest Plan and compliance with the adopted air quality program in the State of South Dakota.

Silicon Valley Power, PICO Power Project Application for Certification, Santa Clara, CA.

Co-authored the air quality and public health section of the Application for Certification (AFC) for a 135 MW combined cycle power plant to be located in the south San Francisco Bay area in the city of Santa Clara, CA. The air quality section contains an in-depth analysis of existing and background air quality, BACT analysis, emissions quantification for a wide variety of operational scenarios, hazardous pollutant quantification, regulatory compliance analysis, and mitigation (emission reduction credit) analysis. The public health section of the AFC contains a detailed analysis of hazardous pollutant emissions, exposure assessment, and complete multiple-pathway cancer risk analysis. Analyses for acute and chronic health affects were prepared as well as a population cancer burden analysis.

County of Modoc, Alturas Power Project Fatal Flaws Analysis, Alturas, CA.

Prepared the air quality issues analysis for a proposed 300 MW "clean coal" technology project utilizing gasification fluid bed and combined cycle turbine systems. The air issues analysis presented discussion on the following applicable regulatory programs; California Energy Commission jurisdictional issues, PSD and NSR permitting issues, BACT issues, ERC (offset) issues, local air district regulatory compliance issues, Class I area impact issues, stack height and FAA issues in the context of site location and the proximity of the Alturas airport, emissions estimates, and the potential for pre- and post-construction monitoring. In addition, the analysis presented data on local and regional climate, existing air quality, and dispersion modeling screening impacts for the project emissions.

County of Modoc, Canby Biomass Project Critical Issues Analysis, Canby, CA.

Prepared the critical issues analysis with regard to air issues for a proposed 3 MW biomass power production project located in Canby, CA. The analysis included discussion of the following; local and regional climate, existing air quality, existing county emissions inventory, regulatory compliance review, NSR and PSD permitting issues, ERC (offset) requirements, BACT issues, emissions quantification, and the potential for pre- and post-construction monitoring.



Calpine Corporation, Critical Issues Analyses-Various Sites, California

Prepared the critical issues analyses for various proposed power production, power storage, and LNG processing sites in California as follows: Pajaro (Monterey County), Hesperia (San Bernardino County), Milpitas (Santa Clara County), Humboldt Bay LNG (Humboldt County), Regenesys System (Bay Area). Each of these analyses included discussion of the following; California Energy Commission jurisdictional issues, PSD and NSR permitting issues, BACT issues, ERC (offset) issues, local air district regulatory compliance issues, Class I area impact issues, emissions estimates, and the potential for pre- and post-construction monitoring. In addition, the analyses presented data on county statistics, local and regional climate, existing air quality, regional emissions inventory data, and risk management issues.

Enron North America, Las Vegas Cogeneration LP, Air Permitting, Las Vegas, NV.

Prepared the PSD air permitting document for the 240 MW expansion of the existing Las Vegas Cogeneration LP facility. The expansion was comprised of four (4) LM6000 Sprint turbines with unfired HRSG's, and two (2) steam turbines. The permit application document contained analyses of background air quality, BACT evaluations, detailed air quality impacts evaluation (dispersion modeling) for the Las Vegas Valley, Lake Mead National Recreation Area, and the Grand Canyon regions, as well as a detailed regulatory analysis, mitigation analysis, PSD increment, endangered species, soils, and vegetation analyses. The application document also analyzed a proposed increase in operating hours for the existing LM6000 turbine and cooling tower.

CalEnergy, Inc., CalEnergy Minerals-Mineral Recovery Project, Calipatria, CA.

Prepared the air quality documentation and permit support package for a proposed mineral (zinc) recovery facility utilizing spent geothermal brine from four (4) existing geothermal power plants located in the Salton Sea KGRA (known geothermal resource area). The mineral recovery process involved ion exchange, purification, solvent extraction, electrowinning, and ingot production and handling processes. The air document included analyses of existing climate and meteorology, background air quality, process BACT evaluations, emissions quantifications, detailed dispersion modeling and impacts analyses, and a regulatory compliance evaluation.

UAE Energy Operations Corporation, Oildale Energy LLC, Air Permitting, Bakersfield, CA.

Prepared the permitting document for the replacement of the existing LM5000 turbine with a new LM6000 Sprint turbine. Negotiated with local air district to allow the turbine upgrade as a "functionally identical replacement". Support documentation included emissions evaluations and comparisons for both turbines, operational analysis, and permit compliance analysis.

Williams Co., Air Permitting, New Mexico, Colorado, Wyoming

Participated as a team member on a wide variety of permitting projects for the Williams Co. (Field Services Division) for sources such as gas gathering and distribution lines, gas processing plants, compressor stations utilizing internal combustion engines and gas turbines. These projects involved both major and minor sources, as well as existing source modifications, and Title V permitting.

Simpson Paper Company, Mill Title V Applications, Various Locations in California and Vermont Prepared the Title V applications and support documents for three (3) non-integrated paper mills and one (1) integrated pulp and paper mill. The mills were as follows:

- Shasta Mill, Anderson, CA. Integrated Pulp/Paper Mill
- Ripon Mill, Ripon,, CA. Non-integrated Paper Mill
- Centennial Mill, Gilman, VT. Non-integrated Paper Mill
- San Gabriel Mill, Pomona, CA. Non-integrated Recycled Paper Mill

These applications and support documents contained all required Title V application elements including, but not limited to; listing of permitted and non-permitted equipment and systems, emissions



quantifications, regulatory analysis and compliance review for all applicable requirements, monitoring and compliance strategy, and reporting and record keeping strategies.

PREVIOUS EMPLOYERS

ENV Environmental – Sr. Consultant
Tetra Tech EC, Inc. – Sr. Air Quality Scientist
Foster Wheeler Environmental Corporation – Sr. Air Quality Scientist
RTP Environmental Associates, Inc. - Associate
CARNOT Technical Services – Manager, Air Group
Energy Systems Associates – Sr. Regulatory Affairs Analyst
Shasta County Air Quality Management District – Air Pollution Control Officer
Butte County Air Pollution Control District – Deputy Air Pollution Control Officer

PUBLICATIONS & PRESENTATIONS

Booth, R.B. 2001. Emission Control Requirements: An Industrial Perspective. Council of Industrial Boiler Operators-Annual Conference. San Diego, California.

Greenway, A., R. Booth, et.al. 2000. Contributing author. Environmental Permitting Handbook. McGraw-Hill, New York. Chapters 11 and 17.

Greenway, A., R. Booth, et al. 1998. Contributing author. Risk Management Planning Handbook. Government Institutes. Chapter 6.

Booth, R.B. 1994. Nitrogen Dioxide Emissions Reductions and the Clean Air Act of 1990: A Regulatory Update. AIChE 24th One-Day Technical Meeting. Anaheim, California.

Booth, R.B. 1994. Fuel Oil Cleaning as a Risk Reduction Strategy for Utility Units Firing Residual Fuel Oils. Electric Power Research Institute. EPRI-AWMA Acid Rain Conference, Phoenix, Arizona.

Booth, R.B., M. McDannel. 1993. Summary of Air Toxic Emission Values from Small Coal-Fired Fluidbed Boilers. A24. Air and Waste Management Association-Annual Conference. Denver, Colorado.

Booth, R.B., K. Skipka, P. Neil. 1993. Clean Air Act: Title III Air Toxic Regulations Update. Ninth Annual IEA Environmental Compliance Conference. San Diego, California.

Booth, R.B. 1993. Potential Pollutant Offsets from the Electrification of Stationary Internal Combustion Engines-Independent Research Project. Unpublished Manuscript.

Booth, R.B., M. McDannel. 1992. Summary of Air Toxic Emission Values from Utility Boilers Firing Residual Fuel Oil or Natural Gas. 92-132.01. Air and Waste Management Association-Annual Conference.

Booth, R.B., D. Czerniak, E. Mazzi, D. Feenstra. 1991. Guidelines for Selection and Application of the Most Cost-Effective NOx Control Technologies for Gas, Oil, and Coal Fired Boilers. American Power Conference. Chicago, Illinois.

DISCIPLINE CODES

24 Environmental Scientist, Y



SKILL SET

AIR SCIENCES

Air Quality Engineering Air Quality Evaluations Air Quality Permitting

Air Toxics

Ambient Monitoring Atmospheric Science

BACT Analysis

Combustion Specialist Dense Gas Dispersion Dispersion Modeling

Economic Analysis Emission Inventories Environmental Impact

Statements
Meteorology
Permitting Strategy
Programming
BARCT Analysis
RACT Plans

Regulatory Analysis Regulatory Compliance

Risk Assessment
Risk Management

Software Development Source Testing

Stack Testing Title V

HEALTH RISK

Environmental Assessments

Environmental Impact

Studies

Fate & Transport Modeling -

Air (In & Outdoor) Human Health Risk

Evaluation

REGULATORY AFFAIRS

Air Operating Permits

Air Permitting Air Toxics

CAA

CAA Permits
CEC Siting Regs.
Clean Air Act
Compliance Audits
Due Diligence

Emergency Planning Emission Inventorying Environmental Assessment Environmental Assessments

for Property Transactions

(Phase I & II)

Environmental Audits
Environmental Compliance

Audits

Environmental Impact

Statement

Environmental Site

Assessments

Environmental Training

Hazardous Waste

Management

Multi-Media Environmental

Audits NESHAPs NPDES

NPDES Stormwater permitting & Facility Compliance Inspections

NSPS

NSR

Oil Pollution Act

Operating Permits (Title V)

OSHA PSM

Permitting (Air, Water & Hazardous Waste)

Phase I ASTM

Pre-Acquisition Audits Regulations Development

Regulatory Trainer Risk Analysis Risk Management

Plans/Process Safety Disaster

Planning Stormwater

Stormwater Permitting

SPCC Plans

SOCIAL SCIENCE

Land Use Siting

TECHNICAL EXPERTISE

Regulatory Permitting

Served as Project Manager and team member on a variety of regulatory permitting projects throughout California and the United States. These projects involved New Source Review and/or Prevention of Significant Deterioration permitting activities, Title III, Title IV, and Title V permitting projects, dispersion modeling, impact analyses, control technology evaluations, and agency liaison. Clients included biomass and fossil fuel-fired power plants, combustion turbine facilities, waste-to-energy plants, pulp and paper mills, resource recovery facilities, vehicle assembly plants, and a wide variety of industrial and commercial operations. Extensive experience in federal, state, and local agency air quality regulation development and analysis, preparation of emissions inventories, air quality planning issues, enforcement and compliance practices. RACT/BACT/LAER determinations, and cost effectiveness evaluations. Excellent knowledge of the Clean Air Act Amendments of 1990 and the implementing regulations issued to date. Participated as the primary author in the preparation of a definitive analysis of the impact of CAA provisions on residual fuel-oil use by electric utilities across the nation.



Air Toxics

Served as Project Manager and primary author for over 30 air toxic emissions inventory plans and emissions reports pursuant to the California AB2588 Air Toxics Hot Spots Act. Clients included fossil fuel-fired power plants, biomass and waste-to-energy plants, resource recovery plants, surface coating operations, chemical milling facilities, and petroleum product storage terminals.

Supervised and participated in the preparation of a wide variety of multiple pathway health risk assessments. These assessments contained discussions pertaining to hazard identification, exposure assessment, dose-response assessment, and risk characterization. Also included were detailed treatments of acute and chronic health effects, substance toxicity, environmental fate, exposure routes, and environmental transport modeling.

Regulatory Compliance and Environmental Audits

Managed numerous projects dealing with regulatory compliance issues such as permit language negotiation, plume abatement studies, emissions offset acquisition and analysis, and variance preparation. Extensive experience in regulatory rulemaking review and analysis. Prepared a number of source specific environmental audits dealing with cross media impacts, i.e., air, water, solid waste, hazardous materials handling, hazardous waste, land use issues, noise. Conducted numerous Phase I Site Assessments and environmental due diligence reviews for the acquisition of a wide variety of industrial facilities, including power plants, medical services and medical equipment manufacturing facilities, mineral recovery facilities, etc. Extensive experience in the preparation of compliance audits and plans, and Risk Management Plans. Moderate experience in such areas as NPDES point source permitting, Section 401, 402, and 404 permitting, and Endangered Species Act consultations.

RELATED COMPANY INFORMATION

Payroll Number: 504632

Employment Status: P6/part-time Preferred First Name: Richard or Rick

Office Location: Shingletown, Ca. (Irvine-Main Office)

Hire Date: August 2005 Years with Other Firms: 29 Years with Current Firm: 5 Total Years Experience: 34 Supervisor: Robert Donati Office Phone: (530) 474-1893 Cell Phone: (530) 515-9040

Fax: (530) 474-1893

E-mail Address: rick.booth@tetratech.com

Other E-mail Address (if any): altitude3000@gmail.com

Resume Last Revised: 05/1/2010



Scott A. Busa

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Experience 2001 – 2006 2009 - present

Florida Power and Light Company, NextEra Energy Resources (formerly FPL Energy) Director – Business Development, NextEra Energy Resources

- Currently responsible to lead NextEra development of solar thermal power projects in California.
- Previously as a Project Manager and Project Director, responsible for all aspects of power plant project development including regulatory and environmental permitting, site option, lease, and acquisition negotiations, local politics, public relations, financial analysis, utility interconnects, and contract negotiation. Geographic focus in the Western United States, primarily California. Responsible for compiling a regional business plan.
- Managed development teams consisting of local and in-house attorneys, external and internal environmental consultants, engineering, procurement and construction personnel, tax and accounting personnel, financial analysts, lobbyists, labor specialists, and operations personnel.
- Led negotiations for power purchase agreements and procurement of major equipment.
- Conducted presentations in public forums to local residents, state and federal officials, and the
 news media to elicit support for power generation projects. Provided testimony at hearings held by
 the California Energy Commission (CEC).

Measure of success:

- Submitted applications for two 250 MW solar thermal projects which are currently undergoing CEQA review at the CEC (and one under NEPA review at the BLM). Decisions expected in 2010.
- Successfully obtained a license from the CEC to build the largest merchant natural gas fired power plant in California, the 1156 MW Tesla Power Project. Over a four year period, from 2000 2004 more than 50 internal and external team members worked to acquire this license.
- Successfully completed the first "repowering" of a wind farm in California's highly sensitive Altamont Pass Wind Resource Area. The Diablo Winds project involved obtaining county permits, demolition, removal, and reclamation of an old wind farm, realigning the existing partnership structure, renegotiating the power purchase & interconnect agreements, and installing 31 new generation wind turbines.
- Successfully negotiated a 32 MW power purchase agreement to construct the Montezuma Wind Project. This PG&E contract was one of the first renewable energy contracts awarded to FPLE through a competitive bid process.

2006 - 2008

Asset Manager – FPL Corporate Real Estate Department

- Asset Optimization Lead effort to determine best use and long term plan for 2M sq ft corporate real estate portfolio. Determine feasibility and implement multi-tenant build out or sale of 600,000 sf office building. Locate and purchase a 50,000 sf office/warehouse. Divest of licensed properties which have environmental risks. Manage Business Continuity logistics planning.
- Property Sales and Leasing Oversaw leasing of 300+ FPL properties bringing in \$2.5 M in revenue, reducing tax burden, and eliminating maintenance costs on 22,000+ acres of FPL owned property. Develop disposition strategy, market, and sell surplus property portfolio containing 70+ properties. Supported FPL Group entities in evaluating and leasing office space.
- Wetlands Mitigation Banking Construct, operate, and maintain a 14,500 acre wetlands mitigation bank at the Turkey Point power plant. Implement multi-phased construction project with \$11M budget. Managed relationship between regulatory agencies, project developers, and environmental consultants on 67 projects in 2007. Facilitate annual credit sales which exceeded \$4.8 M in 2007. Maintain marketing and credit sales plans.
- Construction Management Oversaw team of seven project managers responsible for the
 construction, renovation, and special maintenance projects associated with corporate office
 buildings and facilities.

1999 - 2001 Manager – Environmental Due Diligence, FPL Environmental Services Department

- Lead a team of Environmental Specialists to provide technical environmental support necessary for FPL and FPLE due diligence projects involving fossil fuel, hydroelectric, wind, solar, and geothermal power generation acquisition and repowering. Manage environmental resources necessary to provide analysis, conclusions, recommendations, and reports required to assess the environmental risks associated with asset acquisition. Ensure smooth transition of assets to appropriate transition, licensing & permitting, construction, or operations team.
- Direct corporate Environmental audit program for utility power generation, distribution, transmission, and vendor/suppliers to identify and rectify environmental risks in a cost effective and efficient manner. Job responsibilities transferred to another section in May 2000.

1997 - 1999 Senior Environmental Specialist – FPL Power Generation Division

• Lead Power Generation Environmental Team to integrate business unit and corporate air and waste environmental strategies into power plant operations and compliance programs. Identify new technologies, streamline O & M programs, simplify permits, and integrate repowering projects into utility operations in order achieve lowest possible impact per MW generated in a cost effective manner. Support development and growth of non-utility asset acquisition and operations.

Measure of success:

- Maintained compliance and reporting requirements under the Clean Air Act Acid Rain and Title V Program for 33 FPL utility plants and 1 FPLE plant without any NOV's.
- Taking advantage of new regulations, a new CEMS SO2 fuel based measurement was instituted saving \$6 million/year in SO2 allowances beginning 1/1/00.
- Instituted an extensive recycling program at each power generation facility including oil ash.
- An Environmental Operational Model was developed as a benchmark for each plant.
- Supported environmental auditing, due diligence, and operational integration of power plants assets acquired in Maine, Virginia, South Carolina, New Jersey, Massachusetts, California, and Pennsylvania.
- Promoted Power Generation's environmental strategies and commitment to the environment by hosting an interactive plant wide "Environmental Challenge" day at each FPL fossil plant, at the corporate headquarters, and at 9 FPLE facilities.

1995 - 1997 Environmental Specialist – FPL Power Generation Division

• Developed and maintained FPL's compliance program with the Clean Air Act Title IV regulations requiring continuous emissions monitoring at 33 fossil fired power plants. As the project began I was involved with the installation of the CEMS equipment, writing EPA monitoring plans, performing initial certification testing, and composing a quality assurance program. Working to fulfill the expectations of the company's Designated Representative, I had the ongoing responsibility to comply with federal reporting and testing requirements, maintaining hands on contact with daily operations, and adapting our program to evolving regulatory requirements. Responsibilities also included continuously applying quality improvement techniques to reduce and simplify operational and maintenance activities.

Measure of success: Each CEM system was approved by the EPA. Quarterly data reports have been submitted since the first quarter of 1995 on time without any fatal errors. FL DEP has conducted multiple site audits without any findings. The QA plan has under gone two major revisions, each time reducing the amount of time plant personnel spend on maintenance & QA activities while maintaining data availability above 95% at all sites.

1989 - 1995 Emission Crew Supervisor, FPL Power Generation Division

• First as an air emission test technician, then moving to emission crew supervisor, responsibilities included testing and reporting of particulate, NOx, SO2, CO2, CO, VOC's, and opacity emissions at 33 oil and gas fired power plants. As a self-directed work group, my test crew was responsible for budgeting, procuring, and building their own test equipment along with performing maintenance and quality assurance activities. Scheduling and communication with plant management, unit dispatch personnel, state inspectors, and outside vendors was critical in successfully completing several hundred tests per year.

Measure of success: Because this test crew was consistently able to provide safe, flexible, and competitive testing services, Florida Power and Light management has chosen this in house service over outside vendors as their preferred provider for air compliance testing.

1987 - 1989 Senior Environmental Scientist - Quantum Resources

Supervise and coordinate environmental laboratory and personnel involved in support work for
Florida Power & Light's Turkey Point Plant. Responsibilities included ground, ocean and cooling
water sampling and analysis, air quality monitoring, meteorological tower maintenance, reporting
to state and federal authorities, scheduling and logistics, computer data analysis, training, and
quality improvement team leader. Major duties also included implementation of a management
plan for a population of American Crocodile on the power plant property.

Education

1982 - 1987

Biology, The Pennsylvania State University

125 credits towards Bachelor of Science with emphasis in ecological research

Professional Affiliations Continuing Education

American Wind Energy Association

Analytical Problem Solving – FPL Group University

The Project Success Method - YCA Presentation Skills – Bob Boylan

Wind Farmer Training Course – Garrad Hassan Strategic Leadership Development Program

Civil Treatment for Managers

Self Managed Team Leader Training

Managing Management Time Environmental Audit Training

EXPERIENCE SUMMARY

Mr. Dadswell has 17 years experience managing and conducting social and economic studies and impact analysis. Specific project experience includes environmental restoration; hydroelectric facilities; transmission lines, power plants, and pipelines; timber sales; land exchanges; military base closures; and port development. Mr. Dadswell has served as Social Science lead on projects located in Wyoming, Washington, Alaska, California, Oregon, Idaho, Montana, and Colorado, and elsewhere in the United States.

EDUCATION

PhD Candidate, Economic Geography, 1995 to 1997, University of Washington

MA, Economic Geography, 1990, University of Cincinnati

BA, Economics and Geography, 1988, Portsmouth Polytechnic, England

TRAINING

BLM Training Course No. 1610-12: Social and Economic Aspects of Planning. Denver, CO. 2005 Introduction to ArcView GIS. Seattle, WA. 2002

NEPA Economic Analysis Tool (NEAT) Training, USDA Forest Service. Juneau, AK. 2002

How to Manage the NEPA Process, The Shipley Group. Seattle, WA. 2001

NEPA: EA/EIS Preparation and Documentation Workshop. Albuquerque, NM. 1993

CORPORATION PROJECT EXPERIENCE

Senior Social Scientist, 2009 to Present

Bonneville Power Administration, Central Ferry-Lower Monumental 500-kV Transmission Line Project EIS, WA. Project manager for a NEPA EIS to evaluate a proposed 40-mile-long 500-kV transmission line project in Columbia, Garfield, and Walla Walla counties, Washington. Prepared the socioeconomic analysis for the project, and evaluated potential environmental justice impacts in accordance with Executive Order 12898.

Senior Social Scientist, 2009-2010

National Park Service, Wrangell-St. Elias National Park and Preserve, Nabesna Off-Road Vehicle EIS, AK. Worked with the National Park Service on the EIS to assess the impact of off-road vehicles (ORV) within the Nabesna district of the Wrangell-St. Elias National Park and Preserve. Responsibilities include assessing the potential socioeconomic and subsistence impacts of Off-Road Vehicle use on nine trails in the Nabesna District of Wrangell-St. Elias National Park and Preserve.

Senior Social Scientist, 2009

Genesis Solar LLC, Genesis Solar Energy Project, Riverside County, CA

Prepared the socioeconomic analysis for a proposed 250 MW solar generating facility in the Sonoran desert, west of the city of Blythe, California. This analysis addressed the availability of labor for the construction and operation phases of the proposed facility, the potential for workers to temporarily or permanently relocate to the project area, and the impacts this would have on housing and other local and regional socioeconomic resources. Assessed the regional economic impacts of the project using an input-output model developed using IMPLAN modeling software and data. Developed estimates of the property and sales and use taxes associated with construction and operation of the proposed facility. Assessed potential environmental justice impacts.



Senior Social Scientist, 2009

Ketchikan Public Utilities, USDA Forest Service, and U.S. Coast Guard, Proposed Line Extension to the U.S. Coast Guard LORAN Station Shoal Cove EA, Revilla Island, Tongass National Forest, AK. Conducted public scoping for a proposed 10.5 mile extension of an existing 115-kV electric transmission line to the U.S. Coast Guard Long Range Navigation (LORAN) Station Shoal Cove.

Senior Social Scientist, 2009-2010

USDA Forest Service and Western Pacific Timber, Upper Lochsa Land Exchange EIS, ID
Senior Social Scientist responsible for evaluating the impacts of a proposed public/private land exchange between the Forest Service and Western Pacific Timber on social and economic resources and recreation. This exchange involves approximately 68,000 acres spread over three national forests and seven Idaho counties. The social and economic analysis evaluated the impacts of the proposed exchange alternatives on employment and the economy, traditional uses and lifestyles, government taxes and revenues, and land management administrative costs. Potential impacts to employment and the economy included potential effects to the lumber and wood products, recreation and tourism, and agricultural sectors. The tax analysis addressed potential impacts to Federal 25 Percent Fund payments, Payment in Lieu of Taxes (PILT) payments, and Idaho property tax revenues. Estimated changes in administration costs included changes associated with property boundary surveys, resolution of boundary disputes, road maintenance, easement acquisition, and Forest Service Special Use Permit administration. Assessed potential environmental justice impacts in accordance with Executive Order 12898.

Senior Social Scientist, 2008-2009

USDA Forest Service, White Chuck Road Repair EA, Mt. Baker-Snoqualmie National Forest, WA. Prepared the recreation, social and economic, and environmental justice assessments for this project, which evaluated road repair alternatives for White Chuck Road. White Chuck Road was damaged by severe flood events in 2003 and 2006.

Senior Social Scientist, 2008

Stirling Energy Services (SES), Solar One, San Bernardino County, CA

Prepared the socioeconomic analysis for a proposed 850 MW solar generating facility in the Mojave desert, east of Barstow, California. This analysis addressed the availability of labor for the construction and operation phases of the proposed facility, the potential for workers to temporarily or permanently relocate to the project area, and the impacts this would have on housing and other local and regional socioeconomic resources. Assessed the regional economic impacts of the project using an input-output model developed using IMPLAN modeling software and data. Developed estimates of the property and sales and use taxes associated with construction and operation of the proposed facility. Assessed potential environmental justice impacts.

Senior Social Scientist, February 2008 to Present

USDI Bureau of Land Management, USDA Forest Service, Wyoming Industrial Siting Council, Idaho Power, and Rocky Mountain Power, Gateway West Transmission Line Project, WY and ID Evaluated the social and economic impacts of a 1,000 mile, 500-kV electric transmission line extending from close to Casper, Wyoming to south of Boise, Idaho. Compiled and analyzed data for Albany, Carbon, Converse, Lincoln, Natrona, and Sweetwater counties in Wyoming. Worked with federal, state, and local agencies with jurisdiction over the project area. Assessed the availability of labor for the construction and operation phases of the proposed facility, the potential for workers to temporarily or permanently relocate to the project area, and the impacts this would have on housing and other local and regional socioeconomic resources. Assessed the regional economic impacts of the project using an input-output model developed using IMPLAN modeling software and data. Developed estimates of the property and sales and use taxes associated with construction and operation of the proposed facility. Assessed the potential for environmental justice impacts in accordance with Executive Order 12898.



Senior Social Scientist, 2007 to 2009

Public Utility District No. 1 of Chelan County and USDA Forest Service, Entiat 115 kV Transmission Line Program NEPA/SEPA EA, Chelan County, WA

Project manager for a NEPA EA to evaluate a proposed 115 kV transmission line project in Chelan County, Washington. This project was designed to meet the requirements of the USDA Forest Service and BLM, as well as the analysis required under SEPA and the requirements of the Washington DFW and Washington DNR. Managed public scoping, preparation of the EA, response to public comments, and wrote the Finding of No Significant Impact for the USDA Forest Service. Prepared the socioeconomic, land use, and visual resources analyses for the project, and evaluated potential environmental justice impacts in accordance with Executive Order 12898.

Senior Social Scientist, October 2006 to 2009

Jordan Cove Energy LNG Terminal and Williams Pacific Gas Connector Pipeline Project, Third Party FERC Services, Coos, Douglas, Jackson, and Klamath counties, OR

Provided third party review of draft socioeconomic and transportation resource reports prepared on behalf of the project proponents for the proposed Jordan Cove Liquefied Natural Gas (LNG) Terminal and Pacific Connector Gas Pipeline Projects in Oregon, on behalf of the Federal Energy Regulatory Commission (FERC). Prepared the social and economic and transportation sections for the EIS based on the draft resource reports. Evaluated potential environmental justice impacts.

Senior Social Scientist, April 2008 to Present

Palomar Gas Transmission Project, Third Party FERC Services, Wasco, Clackamas, Marion, Yamhill, Washington, Columbia, and Clatsop counties, OR

Provided third party review of draft socioeconomic and recreation, land use, and aesthetics resource reports prepared on behalf of the project proponents for the proposed Palomar Gas Transmission Project in Oregon, on behalf of the Federal Energy Regulatory Commission (FERC). Prepared the social and economic, transportation, land use, recreation, and visual resource sections for the Draft EIS based on the draft resource reports. Evaluated potential environmental justice impacts.

Senior Social Scientist, 2008

Suncadia LLC, No. 4 Mine Site, Master Planned Development EIS, Kittitas County, WA Assessed the potential impacts of a 31 acre master planned development in the city of Roslyn on aesthetics and parks and recreation.

Senior Social Scientist, 2008

USDA Forest Service, Review and Evaluation Report on the 2003 to 2007 Helicopter Landing Tours on the Juneau Icefield Final EIS and ROD, Tongass National Forest Service, AK

Prepared the recreation and social and economic components of this analysis, which assessed whether conditions have changed sufficiently to warrant revisions to the 2002 Final EIS and ROD for helicopter landing tours on the Juneau Icefield.

Senior Social Scientist, June 2006 to January 2008

USDA Forest Service, Tongass National Forest Land and Resource Management Plan Amendment, Tongass National Forest Service, AK

Prepared the economic and social, recreation, subsistence, roadless area, and wilderness analyses for a NEPA Draft EIS that evaluated seven alternatives for managing the Tongass National Forest. This project was generated by a Ninth-Circuit Court decision mandating that the Forest redo their Forest Plan. The Court directed the Forest Service to consider a wider range of harvest alternatives and to consider the cumulative effects to wildlife habitat from harvest on private lands as well as on federal land. The Economic and Social analysis addresses the effects of the proposed plan alternatives on the regional



economy and local communities, in terms of effects on the timber, recreation and tourism, and other industries, as well as local land uses, subsistence, and resident recreation. Total (direct, indirect, and induced) impacts were estimated using IMPLAN. The analysis also addressed non-market values and ecosystem services, natural amenities, and quality of life. The economic analysis also assessed the economic efficiency of the proposed alternatives. The Recreation analysis assesses the effects of the proposed alternatives on future recreation supply and demand, in terms of the effects on the supply of types of recreation, recreation places, and developments and demand by residents, tourists, and outfitter/guide businesses. The Subsistence analysis evaluates the potential for the alternatives to affect subsistence resources and focuses on three key factors identified in Title VIII of the 1980 Alaska National Interest Lands Conservation Act (ANILCA): 1) resource distribution and abundance, 2) access to resources, and 3) competition for the use of resources. The Roadless Area analysis assesses the alternatives in terms of Land Use Designations and the portions of roadless areas that would be available for harvest under each alternative. None of the alternatives propose new wilderness, but there would be some variation in wilderness management under the alternatives. These variations are evaluated in the Wilderness analysis.

Senior Economic Analyst, August 2005 to January 2007 Washington State Department of Archaeology and Historic Preservation, Historic Preservation Economic Impact Study, WA

This study, co-authored with Dr. William Beyers of the University of Washington, measured the economic impacts of historic rehabilitation and heritage tourism on Washington State and provided separate assessments of these effects for King, Pierce, and Spokane counties. This analysis also estimated the economic impacts of investments in the nine Main Street communities in Washington State. These impacts were measured using the Washington State input-output model, with separate county-specific models developed to assess the impacts for each of the three counties. Impacts were assessed in terms of total output (sales), employment, labor income, and tax revenues. The analysis also assessed the effects of historic designation on property values for four single-family, residential Historic Districts in four cities: Bellingham, Ellensburg, Spokane, and Tacoma. These effects were assessed using a paired comparison approach that compared the values of properties within the subject Historic District with similar properties in other comparable neighborhoods that have not received historic district designation.

Senior Social Scientist, October 2005 to April 2008 Bonneville Power Administration, Rebuild of Libby (FEC) – Troy Section of Libby-Bonners Ferry 115-kV Transmission Line, NEPA EIS, Lincoln County, MT

Managed Tetra Tech's contract with BPA for various technical services related to the rebuild of 17 miles of existing 115 kV transmission line. Tasks included evaluating the social and economic, land use, and transportation impacts of the proposed alternatives, as well as conducting GIS analyses and wetland surveys along the existing and proposed transmission line corridors. The social and economic impact analysis addressed the concerns identified during public scoping for the project, including potential impacts to local employment and income, local businesses, housing, public facilities, and community values and concerns, such as property values and tax revenues. This analysis also assessed potential environmental justice impacts in accordance with Executive Order 12898.

Senior Social Scientist, August 2003-February 2007

Public Utility District No. 1 of Okanogan County and USDA Forest Service, Methow Transmission Project NEPA/SEPA EIS, Okanogan County, WA

Assistant project manager for a joint SEPA/NEPA EIS to evaluate a proposed 27.5-mile 115-kV electric transmission line and other reasonable alternatives, including the "hot" rebuild of an existing transmission line that crosses National Forest System lands. Managed public scoping, overall preparation of the EIS, and detailed response to public comments on the Draft EIS. The Final EIS was challenged in the Superior



Court of the State of Washington by project opponents and the challenge was dismissed by the Judge on all counts. Also responsible for preparing the social and economic, land use, and recreation impact analyses. The social and economic analysis addressed all social and economic concerns raised during public scoping for the project, including the economic impacts associated with construction and operation activities, improved electrical service reliability, and changes in tourism and regional visitation. The analysis also assessed the potential impacts of the alternatives on residential development and growth, property values, and electricity rates. The section also evaluated potential environmental justice impacts in accordance with Executive Order 12898.

Senior Social Scientist, January 2004-October 2006

USDA Forest Service and Clearwater Land Exchange - Oregon, Blue Mountain Land Exchange EIS, Malheur, Umatilla, and Wallowa-Whitman National Forests, OR

Senior Social Scientist responsible for developing the social and economic resource analysis and report for a 50,000-acre public/private, land exchange between the Forest Service and Clearwater Land Exchange-Oregon, a third party contractor representing more than 40 private landowners. This analysis evaluated the impacts of the proposed exchange alternatives on employment and the economy, traditional uses and lifestyles, government taxes and revenues, and land management administrative costs. Potential impacts to employment and the economy included potential effects to the lumber and wood products, recreation and tourism, and agricultural sectors. The tax analysis addressed potential impacts to Federal 25 Percent Fund payments, Payment in Lieu of Taxes (PILT) payments, State of Oregon property tax revenues, and Oregon Forest Products Harvest Tax revenues. Estimated changes in administration costs included changes associated with property boundary surveys, resolution of boundary disputes, road maintenance, easement acquisition, and Forest Service Special Use Permit administration. Assessed potential environmental justice impacts in accordance with Executive Order 12898.

Senior Social Scientist, September 2003-June 2006

USDI Bureau of Land Management, Butte Resource Management Plan and NEPA EIS, Butte Field Office, MT

Senior Social Scientist responsible for developing the social and economic resource analysis of proposed revisions to the Butte Field Office's Resource Management Plan, which involves more than 300,000 acres distributed over eight counties. The affected environment portion of the analysis incorporated data compiled for the BLM by the Sonoran Institute. The economic effects analysis used IMPLAN and the USDA Forest Service's recently-developed, IMPLAN-based Forest Economic Analysis Spreadsheet Tool (FEAST). Potential impacts include changes in employment and income, associated with potential effects to the agriculture, recreation, timber, mining, and government sectors. The analysis also evaluated the potential effects of the alternatives in terms of natural amenities, quality of life, non-use values, and ecosystem services. The social analysis assessed potential effects to specific geographic communities and potentially affected social/occupational groups. Potential effects on social/occupational groups—including ranchers, mill workers and loggers, and outfitter/guides—were assessed based on concerns and issues raised during public scoping for the project. This analysis also assessed potential environmental justice impacts in accordance with Executive Order 12898.

Senior Social Scientist, 2005

USDI Bureau of Land Management, Yuma Resource Management Plan and NEPA EIS, Yuma Field Office, AZ

Prepared the socioeconomic affected environment study for the NEPA EIS being prepared for proposed revisions to the Yuma Resource Management Plan. The BLM's YUMA Field Office manages more than 1.3 million acres spread over five counties. The affected environment analysis focused on potentially affected economic sectors and activities, including recreation, winter visitation, mining, agriculture, and timber. This analysis is based on data compiled from a variety of sources, including data compiled for the BLM by the Sonoran Institute.



Senior Social Scientist, 2003-2005

Washington Department of Natural Resources, NOAA-Fisheries, and US Fish and Wildlife Service, Federal Assurances NEPA EIS, WA

Assessed the social and economic, recreation, visual, and land use impacts associated with the current Washington Forest Practices Program and three alternatives. The purpose of the project was to provide Federal Assurances under the Endangered Species Act for the current Washington Forest Practices Program. Assessed potential environmental justice impacts in accordance with Executive Order 12898.

Senior Social Scientist, 2003-2005

Washington Department of Natural Resources (DNR), Sustainable Harvest SEPA EIS, Westside Counties, WA

Assessed the impacts of six sustainable timber harvest alternatives upon public utilities, including transportation impacts and payments to trust beneficiaries, recreation, and visual resources. The project assessed the impacts of management decisions for all DNR-managed lands in western Washington, approximately 1.5 million acres.

Senior Planner, 2003-2004

Columbia River Fish Mitigation System Flood Control Review Section 905(b) Analysis, Walla Walla District, WA, OR, ID, MT, BC

Participating in a 905(b) reconnaissance-level analysis that is being conducted to determine if there is a Federal interest in pursuing a more detailed feasibility analysis of modifying current system flood control operations to benefit endangered species, particularly salmon.

Senior Social Scientist/Economist, 2002-2004

USDA Forest Service, Couverden Timber Sale NEPA EIS, Tongass National Forest, AK Analyzed the potential social and economic impacts of various timber sale alternatives. Examined current market demand for timber and southeast Alaskan forest products employment. Estimated changes in local employment and payments to the state associated with each alternative. Estimated the economic efficiency of the proposed alternatives using the Forest Service's NEPA Economic Analysis Tool (NEAT).

Senior Social Scientist/Economist, May 2002-September 2003

USDA Forest Service, Madan Timber Sale NEPA EIS, Tongass National Forest, AK

Updated the analysis of the potential social and economic impacts of various timber sale alternatives. Examined current market demand for timber and southeast Alaskan forest products employment. Estimated changes in local employment and payments to the state associated with each alternative. Estimated the economic efficiency of the proposed alternatives using the Forest Service's NEPA Economic Analysis Tool (NEAT).

Asst. Project Manager and Senior Social Scientist/Economist, August 2001-April 2003 USDA Forest Service, Tongass Land Management Plan Supplemental NEPA Environmental Impact Statement, Tongass National Forest, AK

Assistant Project Manager and lead Social Scientist for the Tongass Land Management Plan SEIS to evaluate roadless areas within the Tongass for recommendation as potential wilderness areas. Assisted in coordinating the evaluation of over 115 roadless areas (9.7 million acres) in the Tongass against the criteria for determining the potential for each roadless areas to be designated as wilderness. Responsible for the Economic, Social, and Recreation analysis of eight proposed alternatives including different proposals for areas of the Forest to be designated Wilderness. The Economic and Social analysis addressed the effects of wilderness designation upon the regional economy and local communities, in terms of effects on the timber, recreation and tourism, and other industries, as well as local land uses,



subsistence, and resident recreation. Total (direct, indirect, and induced) impacts were estimated using IMPLAN. The Recreation analysis addressed the effects of the proposed alternatives on future recreation supply and demand, in terms of the effects on the supply of types of recreation, recreation places, and developments and demand by residents, tourists, and outfitter/guide businesses. Duties included assisting with the coordination of the public participation process and oversight of the production and update of the public information web site.

Senior Social Scientist, March 2002-September 2002

USDA Forest Service, Tongass Roads Analysis, Tongass National Forest, AK

Assessed the social and economic effects of the existing road system on the Tongass National Forest, as well as the impacts of the roads on unroaded and road-related recreation.

Senior Social Scientist/Economist, July 2001-June 2002

Sierra Pacific Industries and USDA Forest Service, Silver Pearl Land Exchange NEPA EIS, El Dorado National Forest, Placer and El Dorado counties, CA

Senior Social Scientist responsible for developing the social and economic sections of the EIS to evaluate the impacts on the regional economy, government taxes and revenues, and land management administrative costs of a 6,100-acre land exchange between the Forest Service and Sierra Pacific Industries.

Lead Social Scientist, April 2001-August 2001

Calpine Corporation, Gilroy Power Plant Application for Certification, Gilroy, CA

Prepared the social and economic analysis for an Application for Certification for a proposed natural gas turbine power plant in Santa Clara County, California. Assessed the potential effects of construction and operation of the proposed facility on the local and regional economy, as well as potential impacts to fiscal resources and local services.

Lead Social Scientist, August 2001-September 2001

NASA, Marshall Space Flight Center, Propulsion Research Laboratory, NEPA Environmental Assessment, Huntsville, AL

Prepared the social, economic, and visual resources analysis for a proposed Propulsion Research Laboratory at Marshall Space Flight Center. Assessed the potential effects of construction and operation of the proposed facility on the local and regional economy, as well as potential impacts to fiscal resources and local services. Regional economic effects were assessed using multipliers developed by RIMS II.

Lead Social Scientist, April 2001-September 2001

USDA Forest Service, Moira Timber Sale NEPA Environmental Impact Statement, Tongass National Forest, AK

Analyzed the social and economic effects of a proposed timber sale on the Tongass National Forest. Addressed local and regional population and employment, timber supply, market demand, economic efficiency, payments to the state, and costs and benefits to the public.

Lead Social Scientist, January 1998-October 2001

U.S. Army Corps of Engineers, Walla Walla District, Lower Snake River Juvenile Salmon Migration Feasibility Study Report/NEPA Environmental Impact Statement, WA and ID

Served on the regional workgroup that oversaw and developed detailed technical analyses of the social and economic effects of four salmon recovery alternatives that included breaching four large federal dams on the lower Snake River. Coordinated and developed the detailed economics appendix from technical studies conducted by specialist workgroups. Total (direct, indirect, and induced) regional economic impacts were estimated using IMPLAN. Prepared the social resources, transportation, hydropower, water



supply, recreation, cultural resources, Native American values, and environmental justice sections of the EIS.

Lead Social Scientist, September 2000-April 2001

U.S. Army Corps of Engineers, Lower Snake River Juvenile Salmon Migration Feasibility Study, Assessment and Evaluation of the Drawdown Regional Economic Workgroup Recreation Analysis Findings, WA and ID

Evaluated the findings of the recreation analysis developed by the Drawdown Regional Economic Workgroup for the Lower Snake River Juvenile Salmon Migration Feasibility Study. The original study projected visitation to the lower Snake River if the dams were removed and the associated economic costs and benefits to the region and the nation. This analysis conducted with Dr. Charles C. Harris of the University of Idaho assessed these findings by reviewing the methodology employed in the original analysis and comparing the findings with data for other free-flowing river stretches in the Pacific Northwest.

Social Scientist, April 2000-April 2001

USDA Forest Service and Weyerhaeuser Company, Huckleberry Land Exchange Supplemental NEPA Environmental Impact Statement, WA

Prepared the social and economic analysis of seven land exchange alternatives. The analysis addressed effects on local communities, the regional economy, government taxes and revenues, and land management administrative costs associated with a land exchange between the Forest Service and Weyerhaeuser involving 35,000 acres.

Social Scientist, May 2000-January 2001

USDA Forest Service, Upper South Platte Watershed Restoration NEPA Environmental Assessment, Pike National Forest, CO

Prepared the land use, transportation, and socioeconomic analysis for three alternatives designed to reduce fire risk and stream sedimentation. Potential impacts included those associated with logging and associated truck traffic.

Social Scientist, August 2000-March 2001

USDA Forest Service, Boundary Waters Canoe Area Wilderness Fuel Treatment Plan and NEPA Environmental Impact Statement, MN

Analyzed the social and economic effects associated with five fuel treatment alternatives designed to reduce fire risk in the Boundary Waters Canoe Wilderness Area. Impacts addressed included those associated with reductions in recreation use, fuel treatment costs, and an influx of temporary firefighters. Total (direct, indirect, and induced) regional economic impacts were estimated using IMPLAN-derived multipliers and coefficients.

Social Scientist, May 1999-October 1999

Confidential Client Report, Prudhoe Bay and other locations, AK

Developed detailed socioeconomic profiles for the state of Alaska, Anchorage, the North Slope, Kenai Peninsula, Fairbanks North Star, and Matanuska-Susitna boroughs, and the Valdez-Cordova Census Area. Assisted in estimating project impacts in terms of resident vs. nonresident employment, population change, distribution of new population, payroll and earnings, nonresident earnings spent in Alaska, and government employment and expenditures. Analyzed project impacts at the borough and community level. Prepared the associated confidential report.



Social Scientist, July 1998-March 1999

U.S. Army Corps of Engineers, Oakland Army Base Disposal and Reuse NEPA EIS, Oakland, CA Assessed the potential regional economic impacts of various redevelopment scenarios using the U.S. Army Corps of Engineers Economic Impact Forecast System (EIFS). Modeled potential direct, indirect, and induced employment, population, income, and sales volume impacts for the construction and operation phases of each alternative.

Social Scientist, June 1998-June 1999

USDA Forest Service, Skipping Cow Timber Sale NEPA Environmental Impact Statement, Wrangell, AK

Developed economic and social resource reports to address the potential economic impacts of various timber sale alternatives. Examined current market demand for timber and southeast Alaskan forest products employment. Estimated changes in local employment and payments to the state associated with each alternative. Prepared the economics section for the Environmental Impact Statement.

Lead Social Scientist, August 1999-October 1999

National Park Service, NEPA Environmental Assessment for the Interim Management Plan, Elwha River Ecosystem Restoration, Clallam County, WA

Evaluated existing conditions and assessed the socioeconomic, recreation, and visual resource impacts associated with three management alternatives for 1,060 acres of land acquired to facilitate removal of the Elwha Dam.

Social Scientist, June 1998-July 1998

U.S. Army Corps of Engineers, Jackson Port Environmental Impact Statement, Jackson, AL Evaluated the sociological and economic development effects of a proposed port facility in south-central Alabama. Assessed the economic, transportation, land use, aesthetic, and environmental justice impacts associated with construction and operation of the proposed project. Prepared the sociological and economic development sections for the Environmental Impact Statement.

Social Scientist, October 1998-October 1998

Calpine Corporation, Sutter Power Plant Application for Certification, Sutter County, CA Reviewed socioeconomic, land use, and traffic and transportation sections, helped respond to agency comments, and developed written testimony for public hearings.

PREVIOUS EXPERIENCE

Dames & Moore, Cincinnati, OH, 1990-1995

Assistant Project Manager/Social Scientist, 1993-1994

Four Rivers Energy Partners, L.P, Pressurized Circulating Fluidized Bed Cogeneration Facility Environmental Information Volume, Calvert City, KY

Four Rivers Energy Partners proposed to build a Pressurized Circulating Fluidized Bed cogeneration facility jointly funded by the U.S. Department of Energy (DOE) as part of a federal Clean Coal Technology demonstration program. Assistant Project Manager responsible for production of an Environmental Information Volume for submission to the DOE. Conducted socioeconomic, land use, traffic and transportation, and visual resource analysis of potential project effects.

Assistant Project Manager/Social Scientist, 1991-1992

Dayton Power and Light Company, Natural Gas/Oil-Fired Generating Station, Dayton, OH Assistant Project Manager responsible for production of an application to the Ohio Power Siting Board for a Certificate of Environmental Compatibility and Public Need. Participated in the detailed site



selection process. Conducted socioeconomic, land use, and visual resource analysis for the selected preferred and alternate sites.

Assistant Project Manager/Social Scientist, 1991-1995

Cincinnati Gas & Electric Company; Dayton Power and Light Company, Ohio Edison Company, Toledo Electric Company and Cleveland Electric Illuminating Company. Electric Transmission Line Projects, North, Central, and Southwest OH

Assistant Project Manager for eight electric transmission line projects and one natural gas underground pipeline project located throughout Ohio and ranging in length from 9 to 30 miles. Proposed and evaluated alternate routings and evaluated potential economic, social, land use, and visual effects.

Project Manager and Principal Investigator, 1990-1995 Various Clients, Phase I Environmental Site Assessments

Project Manager and Principal Investigator for numerous Phase I Environmental Site Assessments, including a number of multiple, fast-track sites. Project sites were located throughout the United States and ranged from vacant land to industrial facilities. Site activities included limited asbestos surveys, radon testing, and lead paint testing.

PROFESSIONAL AFFILIATIONS

American Planning Association Association of American Geographers

DISCIPLINE CODES

Economists: 008, Y

Planners: Urban/Regional: 018, N

SKILL SET

Regulatory Affairs

NEPA

Social Science

Economics

Socioeconomics

RELATED COMPANY INFORMATION

Payroll Number: 13786 Employment Status: Full Preferred First Name: Matt Office Location: Seattle Hire Date: 12/24/97 Years with Other Firms: 5 Years with Current Firm: 12 Total Years Experience: 17

Supervisor: Stephen J.Negri, Biologist/Ecologist

Office Phone: (425) 482-7715

Cell Phone:

Fax: (425) 482-7652

E-mail Address: matt.dadswell@tetratech.com

Other E-mail Address (if any): Resume Last Revised: March 2010



EXPERIENCE SUMMARY

Mr. Farmer has 30 years of relevant experience in cultural resource management, program management, and contract administration. Mr. Farmer's pertinent experience includes cultural resource studies in support of NEPA and CEQA compliance projects in California and 16 other states. Mr. Farmer has held Antiquities Permits as a Principal Investigator in seven western states. He has participated in projects involving the USFS, USACE, NPS, BLM, BIA, Bureau of Reclamation, and Department of Energy and is a former NPS employee. Mr. Farmer has managed a wide variety of CRM projects ranging from literature and records reviews to complex, large-scale inventories and data recovery efforts. He has managed multi-disciplinary teams of up to 40 individuals on previous CRM projects. In addition to his advanced degree in Anthropology, he also holds an M.B.A. in Finance.

EDUCATION

MBA, Finance, Regis University, 1985 MA, Anthropology, University of Colorado, 1977 BA, Anthropology, Tulane University, 1973

REGISTRATIONS/CERTIFICATIONS

Registered Professional Archaeologist

TRAINING

Basic First Aid/CPR, 2006 Project Permitting in NEPA and CEQA 2002

CORPORATION PROJECT EXPERIENCE

Tetra Tech EC – Cedar Creek II Wind Farm Project

Weld County, Colorado. BP Wind Energy: Principal Investigator and Task Leader for cultural resource inventory and test excavation for a 3800 acre wind farm site. Responsible for management and conduct of fieldwork and preparing cultural resource documents for Weld County and State of Colorado.

Tetra Tech EC – Hermosa West Wind Farm Project

Albany County, Wyoming. Shell WindEnergy: Task Leader for preparation of EIS cultural resources section for EIS and Section 106 compliance for a 2200 acre wind farm site. Responsible for quality control of fieldwork documents and preparing EIS related documents for Western Area Power Administration.

Tetra Tech EC – Loveland Pipeline Replacement Project

Larimer County, Colorado. Xcel Energy: Task Leader for Class I records search required for county permits. Responsible for preparing cultural resource reporting document for Larimer County.

Tetra Tech EC - Fremont Butte Wind Farm Project

Washington County, Colorado. enXco Wind Energy: Task Leader for cultural resources section of critical issues analysis for a potential wind energy site

Tetra Tech EC - Briscoe County Wind Energy Facility

Briscoe County, Texas. Shell WindEnergy: Task Leader for cultural resources section of critical issues analysis for a potential wind energy site

Tetra Tech EC - Auwahi Wind Farm Project

Maui County, Hawaii. Sempra Global: Task Leader for preparation of cultural resources reporting documents section for EIS, Section 106, and HRS 13-275-6 compliance for a 1450 acre wind farm site.



Responsible for subcontractor management, quality control of fieldwork documents and preparing documents for Maui County and State of Hawaii.

Tetra Tech EC - Genesis Solar Energy Project

Riverside County, California. NextEra Energy: Principal Investigator and Task Leader for NEPA/CEQA required cultural resource inventory of a 2000 acre solar power project site and associated 6-mile transmission line right-of-way. Responsible for preparing all cultural resource reporting documents for BLM and California Energy Commission.

Tetra Tech EC - Coconino County Wind Project

Coconino County, Arizona. Sempra Global: Principal Investigator and Task Leader for NEPA required cultural resource inventory for met towers. Responsible for preparing all cultural resource reporting documents for USFS.

Tetra Tech EC – Black Butte Solar Power Project

San Bernardino County, California. Cogentrix Solar Services: Principal Investigator and Task Leader for CEQA required cultural resource inventory of a 2000 acre solar power project site. Manager for cultural resource inventory. Responsible for preparing all cultural resource reporting documents to San Bernardino County.

Tetra Tech EC - Silurian Valley Solar Power Project

San Bernardino County, California. Cogentrix Solar Services: Principal Investigator and Task Leader for NEPA required cultural resource inventory of a 2500 acre solar power project site and associated 7-mile transmission line right-of-way. Manager for cultural resource inventory. Responsible for preparing all cultural resource reporting documents for submission to BLM.

Tetra Tech EC - Saguache Solar Thermal Site Environmental Report

Saguache County, Colorado. NextEra Energy: Task Leader for cultural resources section of environmental background report for a 6200 acre potential solar power site

Tetra Tech EC – NextEra Energy Project Study

Alamosa County, Colorado. NextEra Energy: Task Leader for cultural resources section of critical issues analysis for a potential solar power site

Tetra Tech EC – Cogentrix Solar Services Project Studies

San Bernardino County, California, Clark and Nye Counties, Nevada. Cogentrix Solar Services: Task Leader for critical issues analyses at a number of potential solar power sites in California and Nevada.

PREVIOUS EXPERIENCE

URS Corporation – Union Wind Energy Project

Morrow County, Oregon. Clipper Wind Energy: Project Manager for critical issues analysis for proposed wind energy project. Responsible for all aspects of this multi-disciplinary project.

URS Corporation - Gateway West Transmission Line Project

Bear Lake, Franklin, Bannock, Power, Blaine, Minidoka, Lincoln, Jerome, Cassia, Goodling, Twin Falls, Elmore, Ada, Owyhee, and Canyon Counties, Idaho and Converse, Natrona, Carbon, Sweetwater and Lincoln Counties, Wyoming. Idaho Power: Task Leader for NEPA required cultural resource inventory of a 1300-mile transmission line right-of-way and associated substation sites. Manager for cultural resource inventory. Responsible for preparing all cultural resource reporting documents and EIS section for submission to BLM.



URS Corporation - Hydrogen Energy California Project

Kern County, California. BP Alternative Energy: Principal Investigator and Task Leader for CEQA required cultural resource inventory of a 340 acre power plant site and associated 100-miles of linear facility rights-of-way. Manager for cultural resource inventory. Responsible for preparing all cultural resource reporting documents for submission to California Energy Commission.

URS Corporation - Stirling Energy Systems, Solar 2 Project

Imperial County, California. Stirling Energy Systems: Principal Investigator and Task Leader for NEPA/CEQA required cultural resource inventory of a 6500 acre solar power project site and associated 7-mile transmission line right-of-way. Manager for cultural resource inventory. Responsible for preparing all cultural resource reporting documents for submission to BLM and California Energy Commission.

URS Corporation - Hyundai/Kia Automotive Test Course

Kern County, California. Hyundai America Technical Center: Principal Investigator and Project Manager for CEQA required cultural resource test excavation, monitoring, and limited data recovery program for 48 archaeological sites located in a 4500 acre project site. Manager for cultural resource test excavation, data recovery and construction monitoring of track construction and associated facilities. Responsible for preparing all cultural resource reporting documents for submission to California City.

URS Corporation - Crystal Energy Pipeline Project

Ventura and Los Angeles Counties, California. Crystal Energy LLC: Project Manager and Principal Investigator for NEPA/CEQA required Phase I cultural resource inventory of a 60-mile gas pipeline right-of-way. Responsible for project management and preparing all cultural resource reporting documents for submission to US Coast Guard.

URS Corporation - Oak Valley Substation System Project PEA

Riverside County, California, Southern California Edison: Project Manager for the preparation of a Proponent's Environmental Analysis (PEA) for submission to the California Public Utilities Commission for a new substation and 40 miles of 115 kV transmission line. Responsible for all aspects of the preparation of this multidisciplinary report required for CEQA compliance of the project measures

URS Corporation - Southern Basin and Range GPS Network

Inyo County, California. California Institute of Technology: Cultural Resources Task Manager for the preparation of an EA for submittal to the BLM and NPS for permitting the site location of 14 stationary GPS units for seismic studies. Managed literature search, field inventory, analysis, and report writing.

URS Corporation - Santa Barbara Airport Airfield Safety Project

Santa Barbara County, California. Santa Barbara Municipal Airport: Project Manager and Principal Investigator for NEPA required Phase I cultural resource inventory of 50 acre area. Responsible for project management and preparing all cultural resource reporting documents for submission to FAA.

URS Corporation - Glendale Grayson Power Project

Los Angeles County, California. City of Glendale: Principal Investigator and Cultural Resource Project Manager for CEQA required cultural resource inventory program. Manager for cultural resource construction inventory of five acre plant and associated linear facilities. Responsible for preparing all cultural resource reporting documents and EIR section for submission to City of Glendale.

URS Corporation - Agua Mansa Power Project

San Bernardino County, California. City of Colton: Principal Investigator and Cultural Resource Project Manager for CEQA required cultural resource inventory and monitoring program. Manager for cultural resource inventory of 40 acre project site and construction monitoring of plant construction and associated



linear facilities. Responsible for preparing all cultural resource reporting documents and EIR section for submission to City of Colton.

URS Corporation - Newhall Ranch EIS/EIR

Los Angeles County, California. Newhall Land and Farming Company: Cultural Resources Task Manager for this EIS/EIR. Preparing NEPA and CEQA required resource background information and evaluation of potential impacts and mitigation measures for 8,000 acre housing project. Coordination of Section 106 consultation requirements with USACE for the project. Authored Historic Properties Treatment Plan for mitigation measures for the project

URS Corporation - Santa Barbara Ranch EIR

Santa Barbara County, California. County of Santa Barbara: Cultural Resources Task Manager for this EIR. Prepared CEQA required resource background information and evaluation of potential impacts and mitigation measures for cultural resources on this 3000 acre project.

URS Corporation - Magnolia Power Project

Los Angeles County, California. City of Burbank: Principal Investigator and Cultural Resource Specialist for California Energy Commission administered monitoring program. Manager for cultural resource construction monitoring of plant construction and associated staging areas. Responsible for preparing all cultural resource reporting documents for submission to California Energy Commission.

URS Corporation - Niland Power Project

Imperial County, California. Imperial Irrigation District: Principal Investigator and Cultural Resource Specialist for California Energy Commission administered monitoring program. Manager for cultural resource construction monitoring of plant construction and associated staging areas. Responsible for preparing all cultural resource reporting documents for submission to California Energy Commission.

URS Corporation - Mountainview Power Project

San Bernardino County, California. Southern California Edison: Principal Investigator and Cultural Resource Specialist for California Energy Commission administered monitoring program. Manager for cultural resource construction monitoring of plant construction and associated staging areas. Responsible for preparing all cultural resource reporting documents for submission to California Energy Commission.

URS Corporation - Big West Clean Fuels Project EIR

Kern County, California. Big West of California LLC: Cultural Resources Task Manager for this EIR for a refiney expansion. Preparing CEQA required resource background information and evaluation of potential impacts and mitigation measures for submission to Kern County.

URS Corporation - Gaviota State Park Bridge Replacement Project

Santa Barbara County, California. Federal Emergency Management Administration: Crew member on cultural resources inventory for this NEPA required program. Participated in field survey and prepared cultural resource reporting documents for submission to FEMA.

URS Corporation - Rancho Guadalupe Dunes Parking Lot and Overlook Project

Santa Barbara County, California. Federal Emergency Management Administration: Crew member on cultural resources inventory for this NEPA required program. Participated in field survey and prepared cultural resource reporting documents for submission to FEMA.

Gilbert/Commonwealth – Grass Rope Planning Unit/Lower Brule Reservation, Cultural Resource Inventory

Lyman County, South Dakota. BIA/Lower Brule Reservation: Principal Investigator and Project Manager



for cultural resources inventory program for 800 acre irrigation project. Managed field crew for duration of the fieldwork. Responsible for preparing all cultural resource reporting documents for submission to BIA and South Dakota State Historic Preservation Officer and provided compliance coordination.

Gilbert/Commonwealth - WyoDak-Hot Springs 230 kV Transmission Line Project

Campbell, Crook and Weston Counties, Wyoming, Custer and Fall River Counties, South Dakota. Black Hills Power and Light: Principal Investigator and Project Manager for cultural resources inventory of 75-mile power line right of way. Managed field crew for duration of the fieldwork. Responsible for preparing all cultural resource reporting documents for submission to state and Federal agencies Provided compliance coordination for BHPL with Forest Service, BLM, and State Historic Preservation Officers in Wyoming and South Dakota.

Gilbert/Commonwealth - Custer to Edgemont 115 kV Transmission Line Project

Custer County, South Dakota. Black Hills Power and Light: Principal Investigator and Project Manager for cultural resources inventory of 30-mile power line right of way. Managed field crew for duration of the fieldwork. Responsible for preparing all cultural resource reporting documents for submission to state and Federal agencies Provided compliance coordination for BHPL with Forest Service, BLM, and South Dakota State Historic Preservation Officer.

Gilbert/Commonwealth - Glenharold Mine Project

Oliver County, North Dakota. Consolidated Coal Company: Principal Investigator and Project Manager for cultural resources inventory program for 2000 acre coal surface mine. Managed field crew for duration of the fieldwork. Responsible for preparing all cultural resource reporting documents for submission to North Dakota State Historic Preservation Officer and provided compliance coordination for Consol with this agency

Gilbert/Commonwealth - Frontier Pipeline Project

Uinta, Sweetwater, Fremont and Natrona Counties, Wyoming. Amoco Pipeline Company: Principal Investigator and Project Manager for cultural resources inventory, testing/evaluation, and field monitor program for 260 mile petroleum pipeline right of way. Managed field crew for duration of the fieldwork. Responsible for preparing all cultural resource reporting documents for submission to state and Federal agencies. Provided compliance coordination for Amoco with BLM and Wyoming State Historic Preservation Officer.

Huerfano Consultants - Test Excavations at 39LM57 and 39BR11

Lyman and Brule Counties, South Dakota. National Park Service: Principal Investigator and Project Manager for cultural resources test excavations at two multi-component sites located along the Missouri River. Managed field crew for duration of the fieldwork. Responsible for preparing all cultural resource reporting documents for submission to National Park Service.

SAIC - John Martin Reservoir Inventory Project

Bent County, Colorado. US Army Corps of Engineers: Project Manager for cultural resources inventory and testing/evaluation program for 8000-acre reservoir area. Managed field crew for duration of the fieldwork. Responsible for preparing all cultural resource reporting documents for submission to USACE.

SAIC - Test Excavations at Ft. Davy Crockett (5MF605)

Moffatt County, Colorado. National Park Service: Principal Investigator and Project Manager for test excavations at an 1840's era fur trade post. Managed field crew for duration of the fieldwork. Responsible for preparing all cultural resource reporting documents for submission to National Park Service.



SAIC - New Melones Reservoir Project

Tuolumne and Calaveras Counties, California. US Army Corps of Engineers: Assistant Project Manager for mitigation/data recovery for a major reservoir salvage project involving recovery at more than 75 historic and prehistoric sites. Managed a large multi-disciplinary team of more than 40 professionals with a \$2Mbudget.

PROFESSIONAL AFFILIATIONS

Member, Society for American Archaeology

DISCIPLINE CODES

05 Archeologist

SKILL SET

Archaeology Cultural Resource Management Regulatory Compliance

RELATED COMPANY INFORMATION

Payroll Number: 525803 Employment Status: Full Preferred First Name: Reid Office Location: Lakewood, CO

Hire Date: 1/12/2009 Years with Other Firms: Years with Current Firm: Total Years Experience: Supervisor: Carol Rieger Office Phone: (303) 980-3746 Cell Phone: (303) 526-8200

Fax: E-mail Address: reid.farmer @tetratech.com

Other E-mail Address (if any): Resume Last Revised: 2009-10-15



EXPERIENCE SUMMARY

Ms. Farrell has 11 years experience in cultural resource management including prehistoric and historic archaeology, traditional cultural properties, and historic architecture and structures. Among this experience are three years in a supervisory capacity in support of regulatory compliance programs for energy, transportation, mineral and water resources development, commercial, public utility, and state and federal agency clients. She has conducted cultural resources management analyses, treatment plans, surveys, and monitoring associated electric transmission lines, and natural gas and water pipeline routes, and wind and solar projects.

Ms. Farrell has past experience in Cultural Resource Management with the USDA Forest Service, the Bureau of Land Management, and private-sector companies, and she is particularly knowledgeable about Forest Service and BLM permit requirements. She uses GIS and GPS field technologies to assist with the mapping and analyses of cultural resources and compiling inventories. She has conducted extensive literature reviews to assist with cultural/archaeological evaluations and inventories and has consulted with State Historic Preservation Offices.

Ms. Farrell has consultation experience with Native American tribes and the Native American Heritage Commission and has received specialized training by the U.S. Department of Interior on consultation with Native American tribes and serves as tribal liaison for TtEC's cultural resources staff. Ms. Farrell is experienced with the California Environmental Quality Act (CEQA) process and is familiar with state and federal regulations (NEPA, NAGPRA, NHPA) pertaining to cultural resource management. She also has experience with CEQA/NEPA permitting and compliance with large scale energy projects (solar, wind, transmission lines).

Ms. Farrell has archaeological experience abroad, as a volunteer, in South America (Peru) assisting university students with archaeological field methods. She has conducted cultural resources management analyses on a number of proposed development projects in California, Nevada, Utah, Oregon, Washington, and Texas, including proposed and approved energy projects.

EDUCATION

BA, Anthropology/Archaeology, Minor: Native American Studies, Humboldt State University, 1997

TRAINING

CEQA: AEP CEQA Workshop—Understanding the California Environmental Process 2009

CEQA: An Introduction 2006

Section 106: An Introduction, National Preservation Institute, 2006

Technical Writing Seminar, Leadership Development Communications, 2006

Project Management 201, Tetra Tech, EC 2007

Wilderness First Responder 10/2001

Basic First Aid/CPR 10/2007

Integrating Cultural Resources in NEPA Compliance, National Preservation Institute, 12/2001

Consultation with Indian Tribes on Cultural Resources Issues, National Preservation Institute 9/2003

CORPORATION PROJECT EXPERIENCE

Armargosa Solar Project, Nye County, NV, 2010 – ongoing. Cultural Resource Specialist/PI-Coordinating with BLM Las Vegas Field Office archaeologist, attended project meeting, literature search, reporting, Class III field work of approximately 4000 acres scheduled for 2010.

Pah Rah RidgeWind Project, Washoe County, NV, 2010-ongoing. Cultural Resource Specialist/PI -Coordinating with BLM Carson City Field Office archaeologist, attended project meetings, literature search, reporting, Class III field scheduled for 2010.



Blythe Energy Project Transmission Line, Riverside County, CA 2008-2010. Deputy Project Manger/Cultural Resource Specialist. The purposes of the study was to assist Blythe Energy, LLC in complying with the requirements of the California Environmental Quality Act (CEQA) and assist with compliance under the Application for Certification, California Energy Commission's (CEC) final staff assessment (CEC), Docket # 99-AFC-8c) for a 67.4 mile, 230kV overhead transmission line. Duties include: preconstruction permitting, construction compliance, state and federal agency consultation, developing, writing, and assisting disciplines with several treatment, mitigation and monitoring plans (e.g. lighting mitigation, surface treatment, paleontolgical and cultural resources mitigation and monitoring, etc.). Coordinating meetings, schedules, document production, and other project related task with Client, Contractors, CEC Cultural Resources staff, Bureau of Land Management Cultural Staff, and County of Riverside. Assist Archaeological Principal Investigator with Cultural Resource survey planning, cost estimates, and producing a Cultural Resource Mitigation and Monitoring Program for project construction.

Genesis Solar, LLC: Ford Dry Lake and McCoy Wash Solar Project, Riverside County, CA 2008-2010 ongoing. Cultural Resource Specialist/Pl/Field Director. The purpose of the study was to assist Genesis Solar, LLC, in complying with the requirements of the California Energy Commission lead agency for CEQA and the BLM lead agency for NEPA for a large solar facility in southeastern California. Duties include: acquired federal cultural resource permits, assisted Archeological Principal Investigator with all aspects of cultural resource coordination and planning. Conducted Class I literature review, Class II sample survey, and Class III field surveys, co-authored Cultural Resources reports and research design, conducted presentations regarding project, consulted with BLM Palm Springs Field Office archaeologist and the CEC at several meetings, attend CEC/BLM workshops, respond to comments, and is the point of contact for field crew, clients, and agencies.

NextEra, Salt Creek Solar Project, San Bernardino, CA 2009: Cultural Resource Specialist/PI/Field Director. Duties: obtain cultural resource permits, preformed a literature review and a Class III Cultural Resources Survey on BLM land (Barstow field office) for one Irradiance Meter Site and associated access routes. The purpose of this study was to assist NextEra in complying with the requirements of NEPA. Prepared Environmental Assessment and the Class III Survey Cultural Resources Management Report.

eSolar, Los Angeles, San Bernardino, Kern, and Riverside County, CA 2008-2009. Cultural Resource Specialist/PI/Field Director. The purpose of the study was to assist eSolar in complying with the requirements of CEQA for several 1000 acres project within the southern California Desert. Duties include cultural resource planning and coordination of staff, literature searches, field survey, and reporting for eventual CEC certification.

Dillon Wind LLC, Palm Spings, CA 2007. Cultural Resource Specialist/PI/Field Director. Duties: preformed a literature review and a Class III cultural resource survey of approximately 1,500 acres of vacant land for Dillon Wind LLC's (LLC) proposed 45 megawatt (MW) wind energy conversion system (WECS) project, located near the San Gorgonio Pass, north of the City of Palm Springs and west of Desert Hot Springs, Riverside County, CA (within the Cochella Valley of the Colorado Desert). The purpose of the study was to assist LLC in complying with the requirements of the California Environmental Quality Act (CEQA). Other duties included, conducted Native American Consultation and coordination with Native American Cultural Construction Monitors, prepared Final Cultural Report for submittal to the County of Riverside, CA, and prepared the Cultural Resources Mitigation and Monitoring Plan, coordinated and supervised archaeological construction monitors, coordinated with construction staff and the County of Riverside and resolved any cultural issues efficiently and in a timely manner.

Bonneville Power Administration, 2007-2008 Ferry and Stevens County, Washington. Project Manager/PI/Field Director/Author. Duties: preformed a literature review and a Class III cultural resource survey of approximately 24.14 (210 power pole locations) and prepared the Section 106 Report. Other duties included coordination with client, land owners, recordation of archaeological sites and National Register of Historic Places evaluations, and final report preparation.

Catamount Energy, Clark County, NV 2007 Field Director/Author: Duties: preformed a literature review and a Class III Cultural Resources Survey on BLM land (Barstow field office) for 12 Meteorological Tower sites and associated access routes. The purpose of this study was to assist Catamount and BLM in complying with the



requirements of NEPA. Prepared Environmental Assessment and the Class III Survey Cultural Resources Management Report, conducted Native American Consultation, BLM consultation.

enXco, San Bernardino County, CA: Field Director/Author. 2007. Duties: obtain cultural resource permits, preformed a literature review and a Class III Cultural Resources Survey on BLM land (Barstow field office) for two Meteorological Tower sites and associated access routes. The purpose of this study was to assist enXco in complying with the requirements of NEPA. Prepared Environmental Assessment and the Class III Survey Cultural Resources Management Report.

Boulevard Energy, Kern County, CA. Field Director/Author. **2007.** Duties: preformed a literature review and a Class III cultural resource survey (BLM Ridgecrest Field office) for Boulevard Associates, LLC's (Boulevard) proposed four meteorological (MET) tower locations near the town of Tehachapi, in Kern County, California. The purpose of this study was to Boulevard in complying with the requirements of NEPA. Prepared the Class III Survey Cultural Resources Management Report.

Sky River MET Towers, LLC, Tehachapi, CA. 2006. Archaeological PI: Field Lead. Duties: obtained appropriate permits from BLM (State and Ridgecrest, CA offices), preformed a literature review, survey, and reporting for over 4 linear miles and one acre of land for the Sky River project's proposed MET tower locations and access route in the Southern Sierra Nevada, CA (15 miles northeast of Tehachapi, CA). Prepared Final Cultural Resource Report for submittal to the BLM and client.

Field Director, November 2004

Beehive Telephone Company, Grouse Creek Project, UT

Currently serving as Field Director for a 230-mile linear heritage resource inventory of a proposed fiber optic line that runs across BLM, DOT, and State lands in Northwestern Utah. Duties include obtaining permits from agencies, archaeological survey, and detailed site recording procedures. Future work associated with this project includes full Section 106 compliance documentation and reporting as mandated by the BLM, DOT and the Utah SHPO.

Crew Chief, January 2005

Eurus Energy America Corporation, Combine Hills Project, Phase II, OR

Served as Crew Chief for a 484 acre development corridors for constructing interconnections and access corridors for the Combine Hills Turbine Ranch Phase II project (wind-power project). Duties included a heritage resources inventory of the 484-acre development corridors, recordation and GPS mapping of archaeological sites, photographic documentation, and incorporating final survey results and documentation into and existing report.

Archaeologist, January 2005 - Present

Sound Energy Solutions, Long Beach LNG C2 Pipeline Project, CA

Served as Section 106 compliance report author for a C2 pipeline route that extends from proposed Long Beach Liquid Natural Gas import terminal to the ConocoPhillips Los Angeles Refinery, Carson Plant in southern California to satisfy regulator (Federal Energy Regulatory Commission) compliance. Duties also included Native American Consultation, photographic documentation, review of literature research, and heritage resource inventory of the project area.

Archaeological Technician, May 2004

Pacific Legacy, Old Sacramento County Hospital Cemetery, Sacramento, CA

Served as an archaeological technician for a Phase III burial excavation and relocation of the old Sacramento County Hospital Cemetery (c.1880s-1920s). Duties included identifying features, implementation of burial excavation methods, exhuming human remains, data collection and excavation documentation.



Crew Chief/Collections Manager, 12/2003

Edwards Air Force Base Evaluation of Archeological Sites, Edwards AFB, CA

Served as a Crew Chief for Phase I EAFB southern boundary survey. Duties included field supervision of crew, implementation of survey techniques, site relocation and documentation, and new site recording, and collection of artifacts. Served as Collection Manager/Crew Chief for Phase II excavation of 15 prehistoric sites duties include standard excavation practices, lithic characterization, daily collection of artifacts and excavation documentation, artifact and sample preparation, curation.

Archaeologist/Author, 9/2003

Roseville Energy Center, City of Roseville, CA

oseville Energy in complying with the requirements of the California Environmental Quality Act (CEQA) and assist with the Application for Certification under the California Energy Commission's (CEC) permitting process for a natural gas-fired power plant, and associated pipelines, Docket # 03-AFC-1. Duties included: conducted extensive record searches (at the California Historical Resources Information Center, State Library, and City Offices) literature review, and historic map reviews, consulted with city and county Historic Resource personnel, the Native American Heritage Commission, the Native American tribes, and the State Historic Preservation Office, preparation of cultural resource report, replied to response, comments, and any data request requirements, consulted with interested parties regarding cultural resources, and conducted archaeological and architectural field inventories for prehistoric and historic archaeological properties and historic buildings and structures.

Crew Chief, 5/2003-7/2003

Buena Vista Project, Chillon Valley, Peru

Crew Chief for the University of Missouri summer archaeological field school in northern Peru, 2003. Supervised student crew excavation of a Preceramic and Initial period archaeological site. Assisted students with archaeological field methods including, excavation, mapping, unit documentation and photography, artifact identification and collection, soil samples, and unit profiles. Lab work consisted of lithic and ceramic analyses and a study of human remains from biological specimens collected from the site.

Archaeologist/Author, October 2003 – Present Silicon Valley Power, Pico Power Project, Santa Clara, CA

Author of the Cultural Resources Section for the Initial Study, and the Cultural Resource Section for the Application for Certification under the California Energy Commission's permitting process for a natural gas-fired power plant, and assisted in the development of a Cultural Mitigation and Monitoring Plan. Conducted extensive record searches (at the California Historical Resources Information System, State Library, and City Office) literature review, historic map reviews, and oral interviews. Consulted with city and county Historic Resource personnel, the Native American Heritage Commission, Native American tribes, and the State Historic Preservation Office. Conducted archaeological and architectural field inventories for prehistoric and historic archaeological properties and historic buildings and structures. Recorded historic structures and completed site documentation. Completed and provided data requests to the CEC.

Archaeologist/Author, 2001

Russell City Energy Center (01-AFC-07)

Author of the cultural resources section for the environmental assessment for the reconductoring of the transmission line. Conducted a cultural resource literature search and prepared the cultural resources inventory and historical background information.

Archaeologist/Author, November 2003 - February 2004

USDA Forest Service, Clear Creek Kings Canyon Landscape Analysis, Humboldt-Toiyabe National Forest, CA



Served as a technical author for the Cultural Resource section of a detailed, large-scale watershed/landscape analysis in western Nevada. This multi-task assignment included significant archival research to determine the extent and adequacy of existing cultural resources (sites, landscapes, etc.), including their National Register of Historic Places (NRHP) status. Other tasks included determining the desired conditions for cultural resource management, analysis and synthesis of collected data, preparing prehistoric and historic background contexts for the affected area, and the development of recommendations to reconcile current and desired conditions for the analysis area.

Archaeologist/Author, 2002

USDA Forest Service, Hidden Valley Watershed Analysis Project, Shasta Trinity National Forest, CA

Served as a technical author for the Cultural Resource section of a detailed, large-scale watershed/landscape analysis in northern California. This multi-task assignment included significant archival research to determine the extent and adequacy of existing cultural resources (sites, landscapes, etc.), including their National Register of Historic Places (NRHP) status. Other tasks included determining the desired conditions for cultural resource management, analysis and synthesis of collected data, preparing prehistoric and historic background contexts for the affected area, and the development of recommendations to reconcile current and desired conditions for the analysis area.

Archaeologist, 2002

Upper Slate DFPZ Project, Plumas National Forest

Conducted archaeological surveys, recorded historic and prehistoric archaeological sites, and site form preparation.

Author/Archeologist, 2002

Calpine Corporation, Calpine Eureka Project Critical Issues Review, Humboldt Co., CA Conducted literature searches, analyzed data, and authorship of the cultural resource section for the Critical Issues Review for the project area.

Author/Archaeologist, October 2001

Calpine Corporation, Pajaro Energy Center, Monterey Co., CA

Conducted literature searches, analyzed data, and authorship of the cultural resource section for the Critical Issues Analysis for the project area. Collected archaeological field data from technical staff and authorship of the Archaeological Resources Management Report for submittal to client and the California Historical Resource Information Center.

Author/Archeologist, October 2001

Calpine Corporation, Hesperia Energy Center Critical Issues Review, San Bernardino Co., CA Conducted literature searches, analyzed data, and authorship of the cultural resource section for the Critical Issues Review for the project area.

Author/Archeologist

Calpine Corporation, Antioch Energy Center Critical Issues Review, Antioch, CA

Conducted literature searches, analyzed data, and authorship of the cultural resource section for the Critical Issues Analysis for the project area.

Author/Archeologist, January 2002

Calpine Corporation, Milpitas Energy Center Critical Issues Review, CA

Conducted literature searches, analyzed data, and authorship of the cultural resource section for the Critical Issues Analysis for the project area.



Author/Archaeologist, April 2001 – June 2001

Calpine Corporation, Southport Peaking Power Project Critical Issues Review, CA

Conducted literature searches, analyzed data, and authorship of the cultural resource section for the Critical Issues Analysis for the project area.

Author/Archeologist, 2002

City of Modoc, Alturas Power Project Critical Issues Analysis, CA

Conducted literature searches, analyzed data, and authorship of the cultural resource section for the Critical Issues Analysis for the project area.

Archaeologist, April 2002 - 2003

Midway Power, LLC, FPL Energy, Tesla Power Project, CA

Conducted archaeological surveys and recorded historic resources and conducted literature search for the proposed project site and pipeline linear routes. Completed data adequacy request for the California Energy Commission. Author of sections for an Archaeological Resource Management Report (including maps and graphic profiles), and completed archaeological site forms for submittal to the California Historical Resources Information Center.

Archaeologist/Author, 2001 - Present

Calpine Corporation Gilroy City LM6000 Phase I and Phase II Projects, CA

Author of the Cultural Resources Section of the Application for Certification under the California Energy Commission's 21-day Process and four-month process for a natural gas-fired LM6000 peaking power plant. Planned and conducted cultural resources literature searches and archaeological and architectural field inventories for prehistoric and historic archaeological properties and historic buildings and structures. Conducted archaeological literature search and field inventory for the proposed power plant site and linear pipeline routes in Santa Clara County. Consulted with the Native American Heritage Commission and Native American tribes. Served as a liaison between construction personnel, tribal monitors, and agency representatives. Assisted in the development of an archaeological resource treatment plan. Preformed archaeological excavation for data recovery.

Archaeologist/Author, 2001-2002 King City Project, Calpine Corporation

Author of the Cultural Resources Section of the Application for Certification under the California Energy Commission's 21-day Process for LM6000 natural gas-fired turbines at the existing power plant facilities, for submittal to the California Energy Commission. Planned and conducted cultural resources field inventory and archaeological literature search of the proposed power plant project site in Santa Clara and Monterey counties. Consulted with the Native American Heritage Commission and Native American tribes. Authorship of sections (including graphics, maps, profiles) of the Data Recovery Investigations of the Buried Hearth KC-01-01.

Archaeologist, October 2001

Rio Linda/Elverta Power Project, Florida Power and Light

Conducted archaeological and architectural surveys within project area and along linear pipelines, recorded historic structures, and prepared site form documentation.

Senior Archaeological Technician, August 2001 Inland Empire Power Project, Calpine Corporation

Conducted archaeological surveys and site recordation of the proposed project area, and pipeline linears. Senior Archaeological Technician, 2001 Edwards Air Force Base: Management Region 5, Palmdale, CA Senior Archaeological Technician for Phase II detailed mapping and test excavation of 29 archaeological sites chosen from various sub-areas of Management Region 5 on the installation's Precision Impact Range Area. Operated high-precision global positioning system equipment for detailed site mapping,



conducted test excavations, and laboratory analyses to determine National Register eligibility of the 29 archaeological sites.

Senior Archeological Technician, 2001

Edwards Air Force Base: Management Region 5, Palmdale, CA

Senior Archaeological Technician for Phase II detailed mapping and test excavation of 30 archaeological sites chosen from various sub-areas of Management Region 5 on the installation's Precision Impact Range Area. Operated high-precision global positioning system equipment for detailed site mapping, conducted test excavations, and laboratory analyses to determine National Register eligibility of the 30 archaeological sites.

Cultural Resource Technician, June 2000 – January 2003

360 Networks Incorporated, Oregon and Northern California Fiber Optics Installation Project Cultural Resources Technician providing technical and professional support in monitoring compliance for the protection of cultural resources for a fiber optic conduit installation program in southern Oregon and northern California. Monitored construction activities and conducted archaeological surveys and test excavations. Worked closely with Native American monitors. Ensured that all construction activities are performed in accordance with California Public Utilities Commission (CPUC) mitigation requirements and Forest Service/agency permit conditions. Served as a liaison between construction personnel, tribal monitors, and agency representatives

PREVIOUS EXPERIENCE

Archaeologist GS-7, 10/99-05/00

Bureau of Land Management, Elko, NV

Duties included: assisting with Heritage Resource Surveys, on-site archaeological investigation, Native American consultation, site recordation, report writing, prefield research, GIS/GPS sites, create maps in ArcView/GIS, and complete associated projects.

Archaeologist GS-193-07, 06/99-10/99

U.S.D.A Forest Service, Humboldt-Toiyabe National Forest, Elko, NV, Supervisor: Fred Frampton 775-738-5171

Duties included: assisting with heritage resource surveys, prefield research, Native American consultation, on-site archaeological investigation, site recordation, report writing, and completed associated projects, supervised a crew of volunteers during a three-week Passport In Time excavation.

Archaeological Technician, 02/99-05/99

Holman & Associates, San Francisco, CA, Crissy Field Project, Supervisor: Mathew Clark 650-726-6269

Duties included: Assisting with field and lab work pertaining to the archaeological investigation of a historic site (some prehistoric), excavation, screening, sketching stratigraphic profiles, data recovery, tabulation, historic artifact analysis (c. 1776-1940) and artifact preservation.

Archaeological Technician GS-04, 06/98-11/98

USDA Forest Service: Modoc National Forest, Alturas, CA, Supervisor Gerry Gates 530-233-8730 Duties included assisting with the heritage resource survey, on-site archaeological investigation, site recordation, prefield research.

Archaeological Technician, 07/97-03/98 Roscoe & Associates; Eureka, CA



Ms. Jenna L. Farrell Associate Social Scientist/Archaeologist

Phase I and II survey and excavation along the north coast of California. Duties included: field survey, drafting maps, data entry, pre-and post-field research, site testing (excavation), site form and authorship of a section for a cultural resource report.

Environmental Impact Statement



EXPERIENCE SUMMARY

Ms. Festger has a solid background as a biologist and is currently taking on consulting responsibilities such as biological field surveys in the Mojave and Sonoran Deserts of California; permitting; environmental assessments; project planning; EIR/EIS preparation; technical editing and report writing; and project management. She has worked primarily on wind energy, solar energy, and transmission line projects in southern California. Her field experience includes desert tortoise surveys, special-status plant surveys, raptor nest searches, wetland and arid lands jurisdictional water delineations, pre-construction clearance surveys, and construction monitoring.

EDUCATION

BS, Biology, 2000, Northern Arizona University; Minor, Parks and Recreation Management Certificate in Field Ecology, Specialized Study in Botany (Pending), University of California Riverside

TRAINING

CPR, January 10, 2009
Anabat© Acoustics Training, March 2009
National Safety Council Defensive Driving Course, January 2009
Desert Tortoise Council Handling Workshop, October 2008
Standard First Aid, January 10, 2008
Wetland Delineation Trained, Wetland Training Institute, September 2007

PROJECT EXPERIENCE

Biological Monitor, February 2009 - January 2010

Blythe Energy Project Transmission Line, Sonoran Desert, Riverside County, CA

Biological monitor for the construction of a 67-mile, 230kV transmission line that parallels Interstate 10 from Blythe, CA to the Julian Hinds substation at the Hayfield exit. Conducted pre-construction clearance surveys prior to the commencement of ground disturbing activities. Monitored equipment mobilization, ground disturbing activities, grading, construction, operation, and restoration activities to ensure compliance with Project mitigation measures at the direction of the Designated Biologist. Special-status species requiring monitoring included the Mojave desert tortoise, Mojave fringe-toed lizard, nesting birds, and Harwood's milk vetch. Record all sign of special-status species and report observations to the Designated Biologist. Monitoring duties included halting all activities in any area that were determined to have an adverse impact to sensitive biological resources if the activities continued and informing the crew when to resume activities.

Project Biologist and Project Lead, February 2007 – present Granite Mountain Wind Project, Mojave Desert, San Bernardino County, CA

Reviewed and helped assemble the Plan of Development (POD), including researching special status species in the Mojave Desert that may potentially be affected by the Project and writing corresponding biology sections for POD. Conducted field surveys of the proposed turbine strings and access roads, including: jurisdictional waters; raptor nest searches; Bendire's thrasher; avian migration; acoustic bat monitoring using Anabat© software; and botanical surveys. Coordinated field work and wrote and/or reviewed subsequent survey reports, including a general biological resources technical summary report. Project management responsibilities include coordination with the BLM and client; scheduling; and budgeting.

Deputy Project Manager and Project Biologist, August 2007 - Present Genesis Solar Energy Project Permitting, Sonoran Desert, Riverside County, CA

Presently the Deputy Project Manager and biologist for the permitting of as 250MW solar energy facility



Ms. Emily Festger Biologist

in the Colorado Desert near Blythe, CA. Assists the Project Manager with invoicing, scheduling, and budgeting. Assisted in filing an SF-299 application and writing the Environmental Assessment (EA) for a temporary use permit for solar irradiance meters and testing wells. Served as the biological monitor for the installation of two solar radiance meters at the project site and one test well site. Assisted Dr. Alice Karl in biological habitat reconnaissance surveys of two potential project sites in December 2007 and conducted comprehensive biological resource surveys in Spring 2009. Surveys included USFWS protocol-level desert tortoise presence-absence surveys, Mojave fringe-toed lizard surveys, and special-status plant surveys.

Project Biologist and Project Manager, November 2007- July 2008

Joshua Basin Water District, H-Zone Unit 2 Pipeline Replacement Project, Mojave Desert, Joshua Tree, CA

Processed and filed a Notice of Exemption to meet CEQA guidelines for a pipeline replacement project in the Mojave Desert. Completed the California Department of Fish and Game (CDFG) Streambed Alteration Agreement 1600 permit application. Lead the post-construction habitat restoration of the pipeline right-of-way. Restoration required site visit coordination and scheduling; taking cuttings from cacti on site; transplanting cuttings; watering and monitoring transplants for eight months; and reporting.

Assistant Biologist, April 2007 – August 2008

Blythe Energy Transmission Line Project, Riverside County, CA

Involved in writing and reviewing the Worker Environmental Awareness Plan (WEAP) and the Biological Resource Mitigation Implementation and Monitoring Plan (BRMIMP) to satisfy requirements of the California Energy Commission (CEC).

Assistant Biologist, September 2007

Goshen North Wind Project, Idaho Falls, ID

Conducted pre-construction acoustic bat surveys using Sonobat© software and instruments. Surveys lasted six days and each day involved activating and distributing detectors at dawn, and downloading/converting collected data for analysis.

Assistant Biologist, November 2007

Dempsey Ridge Wind Project, Roger Mills County, OK

Assisted in delineating wetlands for a 26-acre proposed wind project. Assisted in all aspects of the delineation including digging pits, evaluation of soil, hydrologic, and vegetative indicators; and GPS marking using a Trimble GeoXT system.

Assistant Biologist/Planner, February 2007 - August 2007 Dillon Wind Project, Sonoran Desert, Riverside County, CA

Assisted in pre-construction surveys of the project area in the Colorado Desert for burrowing owl, Le Conte's thrasher, and desert tortoise. Assistant Planner for Environmental Impact Report. Responsibilities included coordination of technical specialists, review of reports, biological research, response to comments, and preparation and distribution of the Final Environmental Impact Report. Assisted project manager with budgetary duties, invoicing, scheduling subcontractors, proposals, and client management.

CONTACT INFORMATION

Office Phone: (303) 980-3509 Cell Phone: (714) 478-717I

Fax: (303) 980-3539

E-mail Address: emily.festger@tetratech.com



Resume

1. SUMMARY

Ms Forrest is a qualified Environmental Engineer with six years experience in storm water system design, stormwater treatment, wastewater management and project management for a biosolids reuse program in Melbourne, Australia.

Ms Forrest is currently located in northern California where she provides environmental support to projects for the WorleyParsons Infrastructure, Power and Hydrocarbon Customer Sector Groups (CSGs). In the Sacramento Office, Ms. Forrest supports the Power CSG on water resource studies, waste management and environmental permitting for renewable energy and other power projects throughout California and in the western states. In the Martinez Office, Ms. Forrest supports the Infrastructure & Hydrocarbons CSGs.

2. EXPERIENCE

2008-Present

Environmental Engineer, WorleyParsons, Sacramento/Martinez, California, US

The position involved undertaking a variety of water and wastewater design and permitting projects for several clients. The following is a summary of the key water and wastewater projects.

Undertook conceptual and detailed design, permitting and construction assistance for a 20,000 gallon per day onsite septic system with primary, secondary and tertiary treatment systems in the Los Angeles County. This project involved interaction with the Regional Water Quality Control Board, Los Angeles County Department of Health Services and the Los Angeles County Building and Safety.

Preparation of Report of Waste Discharge documentation for Evaporation Ponds and Land Treatment Units associated with Solar Energy Projects in compliance with the California Regional Water Quality Control Board's and California Integrated Waste Management Board's and input into the Application for Certification Documentation for the following sites:

- Genesis Solar Energy Project
- Beacon Solar Energy Project
- ▶ Rice Solar Energy Project

Preparation of Conceptual Drainage Studies which includes assessing the impact on existing drainage systems from development and realignment and design of new drainage channels. The studies were undertaken using a variety of modeling software including Bentley Pond Pack, Bentley Flow Master, HEC-RAS and AutoCAD. Studies were undertaken for the following Solar Energy Projects:

- Genesis Solar Energy Project 2 Sites
- Sonoran Solar Energy Project
- ▶ Rice Solar Energy Project
- Imperial Valley Solar Energy Project
- Trilobite Solar Thermal Development
- Vaca-Dixon Dixon Substation

Preparation of Drainage, Erosion and Sediment Control Plans and/or Stormwater Pollution Prevention Plans in compliance with the California Regional Water Quality Control Board for the following renewable energy sites:

- Genesis Solar Energy Project
- Cal Energy Salton Sea Geothermal Energy Project



Janine Forrest Environmental Engineer

Resume

Vaca-Dixon Dixon Substation

Preparation of Aquifer Protection Permits for Evaporation Ponds and Land Treatment Units associated with Solar Energy Projects in compliance with the regulatory requirements in Arizona for the following sites:

- Nextlight Agua Caliente Solar Energy Project
- LS Power Arlington Valley Solar Energy Project

Preparation of Water Quality Management Plans in compliance with regulatory requirements in Maricopa County, Arizona for the following sites:

- Kramer Junction PV Solar Energy Project
- Lucerne Valley PV Solar Energy Project

Preparation of Mitigation Measure documents for the Trans Bay Cable Project (two electrical Converter Stations) which included:

- Construction and Operation Storm Water Pollution Prevention Plans (SWPPP)
- Spill Prevention and Control and Countermeasure (SPCC) Plans
- Waste Management Plans
- ▶ Managed the planning and building permit submittal processes for both Converter Station Sites which involved liaison with the City and County of San Francisco, Port of San Francisco, City of Pittsburg, Regional Water Quality Control Board, San Francisco Fire Department, Contra Costa County Fire Protection District, San Francisco Public Utilities Commission, San Francisco Municipal Transport Agency and the three engineering design companies. Tasks also included preparing the document submittals, expediting the agency review and resubmittal period and maintaining the permit schedule and action items list.

2004-2007 Melbourne Water, Melbourne, Victoria, Australia

Project Planner/Engineer (2007-2007)

This position was within the Strategy and Planning Group, with the main role of coordinating the \$10M Biosolids Reuse Program which aimed to reuse biosolids from the wastewater treatment process off site. Reuse investigations focused on new sustainable and innovative procedures for decontamination, stabilization, energy recovery and recycling of biosolids

This required using many project management skills including scoping of new reuse projects, procurement of resources and tender assessments, undertaking risk assessments of each potential option, managing budgets, managing external consultants, reviewing investigations and reporting outcomes.

Developer Works Engineer (2006-2007)

This position was within the Waterways Group, with the main role of reviewing drainage designs for new residential, commercial and industrial estates to ensure they aligned with Melbourne Water's requirements. Tasks included:

- Preparation and release of Contract Documentation for the construction of Storm water Systems in new developments which included undertaking a review of the drainage requirements, environmental assessments from existing databases and assessing the financial conditions
- Approval of Engineering Plans for Storm water Systems in new developments
- Representing Melbourne Water in the Victorian Civil and Administration Tribunal (VCAT) on two occasions, both related to land zoning of private properties and the impact of flooding and proposed drainage scheme infrastructure.



Resume

Redevelopment Catchment Planner (2005-2006)

This position was within the Waterways Group with the main role of coordinating the redevelopment drainage scheme program and associated 25 year works program with an annual capital allocation of \$10M. Tasks included:

- Gathering and reviewing existing information on drainage system capacities
- Reviewing hydrological modeling provided by consultants
- Calculating the drainage scheme rate change using financial modeling tools
- Obtaining Board Approval for the creation of a new drainage scheme and rate
- Managing the 25 year construction work program in conjunction with the Company's renewals and flood mitigation programs.

Catchment Planner (2004-2005)

This position was within the Waterways Group with the main role of undertaking conceptual storm water system designs in Greenfield Drainage Schemes. Tasks included:

- Concept design of "hard" engineering infrastructure including pipes, culverts and channels.
- Concept design of water quality systems including wetlands, bio retention basins, and swales
- Community consultation for landowners within new schemes (over 200 properties)
- Hydrological, Hydraulic and Water Quality Assessments in large catchments using computer modeling tools (RORB, HEC-RAS, MUSIC)

3. **EDUCATION**

Bachelor of Environmental Engineering, Monash University, 2003

4. **AFFILIATIONS**

- On the Technical Working Group for the Alternative Urban Water Sources Victorian State Government Investigation which investigated the feasibility of 4 water sources: black water, grey water, storm water and rain water (2005)
- On the Technical Working Group for the \$10M Storm water Fund, Lead by the Government Department - Department of Sustainability and Environment which involved reviewing applications against set criteria and providing comments regarding their feasibility (2005 & 2006)
- Environmental Engineer of the Year (2008), West Coast Operations, WorleyParsons
- Past President (2003) and Secretary (2002) of the Monash Environmental Engineering Society
- Past Secretary (2003) and Major Events Coordinator (2002) of the Monash Engineering Student Society

5. SPECIFIC TECHNICAL EXPERTISE/SPECIALIST COURSES

- WorleyParsons EcoNomics Analyst, West Coast Operations
- Storm Water Drainage System Design including Water Resource Modeling (RORB, HEC-RAS, MUSIC)
- Short Course in Project Management Certificate IV, Swinburne University, Hawthorn, Victoria, Australia (June 2007)



Jared Lee Foster, P.E. Principal Mechanical Engineer

Resume

SUMMARY

Over eight years of experience in power plant construction and design. Experienced in the design of concentrated solar power plant technology and as a project team leader/task manager responsible for coordination of engineering efforts between disciplines. Provide permitting support, owner interface and initial project development. Evaluated various solar plant configurations, turbine size, solar field arrangements, cooling system optimization. Experienced Solar Advisor Model (SAM) user and developed method for modeling specific steam cycle models within SAM to further optimize systems. Assisted in various capital cost estimates related solar thermal projects. Acted as owner's representative for five years during the construction of simple and combined cycle power plants.

EXPERIENCE

2007 - 2009 Senior / Principal Mechanical Engineer – WorleyParsons, Sacramento, California

2009 - Present

NextEra, Concentrating Parabolic Trough Solar Plant – Task Manager/Lead mechanical engineering providing engineering support for Bureau of Land Management and California Energy Commission Submittals.

- Lead weekly engineering meetings.
- ▶ Coordinating activities between the client, consultants, and WorleyParsons.
- Developed AFC Section and respond to various data requests.
- Scope and manage engineering tasks.
- Evaluate different plant configurations

2009 - Present

LSPower, Concentrating Parabolic Trough / Photovoltaic Solar Plant –Mechanical engineering duties include preliminary site plan and power block development. Evaluation of multiple plant configuration including thermal energy storage and co-firing. Supported submittal to the Arizona Corporate Commission and County.

2008 - Present

FPL Energy, 250 MW Concentrating Parabolic Trough Solar Plant – Task Manager/Lead mechanical engineering responsibilities include:

- Provided technical support for site development and California Energy Commission Application for Certification.
- Steam cycle plant layout
- Solar field layout
- Generated parabolic trough specifications for procurement
- ▶ Coordinated activities between the client, permitting consultant, and Worley Parsons.

2008

Cogentrix Integrated Solar Feedwater Heater Front End Engineering study to provide solar thermal energy for a coal fired project. Duties included layout, solar model development, and cost estimate support.

Concentrating Parabolic Trough Solar Plant – Lead mechanical engineer providing technical support for 100 and 250 MW solar plants. Provide solar and thermal modeling support, layout development, design basis documents, wet/dry/hybrid cooling evaluation, and cost estimate support.

2008

Confidential Client, Concentrating Parabolic Trough Solar Plant Site. – Lead mechanical engineer providing technical support for site development. Provide solar and thermal modeling support, layout development, design basis documents, wet/dry/hybrid cooling evaluation, and cost estimate support.

2008

Confidential Client, Concentrating Parabolic Trough Solar Plant – Task Manager/Lead Engineer for Plan of Development submittal to the Bureau of Land Management. Tasks included SAM per-

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Jared Lee Foster, P.E. Principal Mechanical Engineer

Resume

formance models, site development drawings, drafting sections of the Plan of Development

2006 - 2007 Senior Technical Specialist – WorleyParsons, Sacramento, California

Southern California Edison, Peaker Project (250 MW Simple Cycle Plants) – Mechanical engineering responsibilities included:

- Supported design criteria development.
- Supported development of initial equipment lists.
- Developed initial process and instrument diagrams.
- Performed initial line sizing calculations for gas and water systems.

Liaison engineering responsibilities included:

- ▶ Represented WorleyParsons during detailed engineering activities, permitting activities, and construction.
- Expedited multi-disciplined engineering activities between the client and Worley-Parsons.
- Expedited the development of permitting support documents used to obtain permits required for plant construction and operation.
- Assisted the client with engineering design review

2003 - 2006 Assistant Project Engineer - Calpine Corporation

Otay Mesa Energy Center, 510 MW Power Generating Facility. Plant comprised of two General Electric 7FA combustion turbines, Nooter Eriksen steam generators, and a Siemens Westinghouse K&N steam turbine. Supported the project manager during the beginning phase of construction. Responsibilities included:

- Managed contractor's daily activities.
- ▶ Acted as liaison between design engineer and contractors for problem resolution and design clarifications.
- Managed coordination, delivery, receipt, and storage of all equipment associated with the project to maintain long-term equipment warranty for equipment valued in excess of \$100 million.
- Oversaw all activities associated with site maintenance.
- Reviewed design for constructability.
- Developed work scopes and evaluated estimates and bids for award.
- Prepared purchase requisitions for materials required during construction.
- Assisted in procurement of major equipment and managed equipment contracts.



Jared Lee Foster, P.E. Principal Mechanical Engineer

Resume

2002 - 2003 Field Engineer - Calpine Corporation

Wolfskill Energy Center, 47 MW Simple Cycle Power Generating Facility, powered by a GE LM6000 Turbine. Assisted project engineers and manager to oversee all field activities for construction. Coordinated mobilization of company construction management to the site. Organized daily meetings with the general contractor to resolve all issues associated with construction. Maintained document tracking of back-chargeable work to mitigate financial impacts.

2004 - 2002 Assistant Project Engineer - Calpine Corporation

Hermiston Power Project, 540 MW Combined Cycle Power Generating Facility consisting of two Siemens Westinghouse 501F-D2 combustion turbines, two Nooter Eriksen heat recovery steam generators (HRSG), and one Siemens K-N turbine. Facilitated the construction and commissioning. Provided field support and performed construction management duties to maintain company's quality standards. Performed system inspections on high-energy steam pipe to ensure installation was to specifications and codes. Performed concrete and rebar inspection to ensure compliance with specifications, standards, and codes. Supported construction activities for a Hamon cooling tower and Nooter Erikson HRSGs.

EDUCATION

B.S., Mechanical Engineering, University of Idaho, Moscow, 2001

REGISTRATIONS/AFFILIATIONS

Registered Professional Engineer, Mechanical - California (M34183), ASME

Resume: E. Trent Heidorn

E. Trent Heidorn

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trentheidorn@aol.com

PROJECT and CONSTRUCTION MANAGEMENT

-----PROFESSIONAL PROFILE-----

- Goal-driven project and construction manager with over 25 years of Power Plant construction experience with direct hire and construction management projects.
- Self-motivated, team player who thinks out of the box, listens and thrives on collaborating ideas and opportunities to derive reasonable solutions to challenging problems.
- Effective verbal and written communicator with experience in contract negotiations.
- Creative, dependable and enthusiastic change agent, with a proven track record for improving efficiencies and reducing cost and schedule.
- Strong leadership and organization skills.

-----AREAS OF EXPERTISE-----

- Project Development, Planning and Execution.
- Management of Multi-Site Operations, Schedules and Cost.
- Strategic Planning, Problem Solving and Leadership.
- Productivity and Efficiency Improvement.
- Multi-Discipline, Coordination, Organization and Management.
- Experienced in Projects utilizing Fossil, Combined Cycle, Waste Energy and Nuclear.
- Utilization of Microsoft –Word, Excel, Power Point, and Outlook.

-----PROFESSIONAL EXPERIENCE-----

Project Manager / Construction Manager, Florida Power & Light (2006 to Present)

- ◆ Construction Manager Martin Solar, providing subcontractors direction and over sight for day to day construction activities. Mananging major equipment purchased, cost and schedule to maintain the early start up date of August 2010.
- Project Manager for Martin Solar Energy Center, first of kind integration of solar energy into an existing combined cycle project. Developed construction scope of work, schedule, procurement packages and contractor selection. Project scheduled for completion 2010.
- Project Manager for early stage development of FPLE wind farms. Managed day to day activities with the site selection, equipment purchase and pre-construction activities. Sited nearly 800 wind turbines for 2008 on 6 to 10 projects, with plans for 1000 turbines for 2009. Development of programs to stream line site selection, equipment layouts and coordination with project development and permit groups.
- ◆ Construction Manager Early stage project development for a 1960 MW super critical PC coal facility, completed EPC and major equipment contract awards.

Maintenance Manager, NEGT, Indiantown, Fl, (2004 to 2006)

- Re-organized maintenance department focusing on safety, manpower, productivity, quality, accountability and coordination of activities with other departments.
- Updated preventative maintenance program; provided engineering support for CAPEX improvements and supervised subcontractors on daily and outage basis.

Construction Manager, NEGT, Covert, MI, (2001 to 2004)

- ♦ Management oversight of EPCM contractor's activities for Covert's 1170 MW merchant power facility. Review and document work performance for safety, quality, quantity, cost and schedule. Manage action items meeting and coordinate punch list activities. Project duration was 30 months with a budget of \$700 million. Over 1 Million Man-hours Safely worked without a lost time accident.
- Direct oversight responsible for erection of lake intake structure, filter beds, and power transmission switch yard.
- Collaborate with design engineers and government agencies to modify and provide extensions to construction permits for Lake Michigan work.

Construction/Project Manager, General Electric Co., Schenectady, NY, (2000-2001)

- ♦ Managed construction operations, streamlined and negotiated subcontracts to support construction actives for GE's first 9-H Gas Turbine installation project.
- Re-negotiated previously released subcontracts in support of 18 month target schedule.

Regional Specialist / Project Superintendent /Lead Construction Coordinator, Bechtel Construction Co., MD (1990 to 2000)

- MSN Telecommunications Northeast Regional Specialist- Consolidate city requirements and establish consistent reporting process for region to meet client needs for scheduling, cost control, trouble shooting and subcontractor interface.
- Multi-Project Acquisition Group established to bid, evaluate, negotiate and award major equipment contracts for multiple projects, ensuring corporate savings.
- Project Superintendent -responsible for development and management of all field activities, safety, manpower, equipment, cost and schedule. Developed innovative approaches to construction schedule for a postage stamp site. Peak manpower of 280 craft, 5 superintendents and 5 engineers.
- Project Development Construction Coordinator, establishing project requirements non-manual staffing, craft manpower, construction equipment, distributable cost, construction cost, unit rates and schedule activities for overseas projects. Performed initial site visits, interviewed and evaluated potential subcontractors.
- Established subcontract plan (Civil, Mechanical, Electrical), developed packages, and reviewed subcontractor's bids. Coordinated schedule activities, fabrication requirements to support field implementation.
- Mentored new coordinators to support new work booked.
- Mechanical Estimator, rotational assignment to developing installation rates and cost estimates for piping and equipment in support of bid process.
- Root Cause Analysis for equipment failures and site incidents for various field sites in support of client requirements.
- Continuous Improvement Coach, chaired meeting between design engineering and field construction teams for lessons learned program.

Construction/Mechanical/General Superintendent, *EBASCO Constructors, Inc,* NJ. (1978 to 1990)

- Site Construction Superintendent- Responsible for all mechanical equipment installation, scheduling, and cost control. Leadership of craft personnel installing all major equipment including Vogt HRSG, GE 7EA gas turbines, GE steam turbines, including all BOP mechanical equipment. Provided mechanical engineer support for mechanical equipment installations. Subcontract administration for site tank farm erection, heavy hauling, and HVAC.
- ♦ Mechanical Superintendent-Provided technical evaluation for HVAC drawings and procedures, reviewing construction schedule and expedited equipment arrival to support the schedule. Provided

technical direction to subcontractor to enhance construction. Inspected vendor documents, equipment, and technical portion of subcontractor's documentation at time of contract closeout.

------EDUCATION------

- ♦ Bachelor of Science, Civil Engineering, Tri-State University, Angola, IN
- ◆ Safety Leadership, Continuous Improvement Coach, Contract Management, Effective Negotiating, Effective Business Presentations., Technical Writing, Industrial Relations for Union Construction, Front Line Leadership, Heavy Rigging, Handling Difficult Issues, Root Cause Analysis, Keeping Your Team On Course.

------REFERENCES-------

• Available upon request.

ALICE E. KARL, Ph.D. ALICE E. KARL & ASSOCIATES, INC.

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Alice has been an environmental consultant since 1978 and is the principal for the firm Alice E. Karl & Associates, a certified woman-owned business. She has an extensive knowledge of the arid southwest, having worked continually in the southwestern deserts of the United States and Mexico for over 30 years. She has also completed biological surveys in the coastal ranges of California and the Central and San Joaquin valleys. She is a highly experienced botanist, herpetologist, small-mammalogist, and a recognized desert tortoise authority. She holds permits that permit her to conduct all activities on desert tortoises (e.g., handle tortoises, apply transmitters, collect blood for health analyses) and conduct independent Mohave Ground Squirrel trapping. She also holds a California scientific collecting permit.

Alice conducts field surveys on special-status species, assists with project permitting, conducts research and monitors construction. She regularly organizes and leads large crews to conduct the necessary biological resource surveys for projects, but also is contracted as a reviewer for other firms' biological surveys and reports. Agency coordination and permitting is a critical component of her projects and she works with agency biologists and project proponents in an efficient and scientifically credible manner to develop conservation-oriented, practical and feasible project design and mitigation measures. Research has included long-term and geographically extensive projects on (a) desert tortoise reproduction, translocation, population viability, habitat relationships; (b) rare plants; (c) vertebrate community relationships; and (d) sampling methods.

In addition to being an accomplished field biologist, crew chief, and project manager, Alice has worked with agency biologists to develop protocols for desert tortoise surveys, translocation, handling, and other procedures. She has developed a sampling technique for estimating tortoise densities over large areas, which is currently being tested for large military expansion projects. She has also contributed to several area-wide plans (West Mojave Plan, Northern and Eastern Colorado Desert Plan, Clark County HCP).

MAJOR PROJECT CATEGORIES

- Solar energy development, hybrid and gas-fired power plants, hydropower projects
- Transmission lines and pipelines
- Wind projects
- Waste facilities
- Military expansion
- Mining

MAJOR TASK CATEGORIES

- Special-status species surveys
- Mitigation plan development
- Permitting (ESA, CESA, CEQA, HCPs, BAs, 2081, 1603, 404, SMARA)
- Agency coordination and workshops
- Designated Biologist/Authorized Biologist
- Research
- Construction Monitoring

SPECIAL-STATUS PLANTS and REVEGETATION

- Principal botanist for numerous surveys of special-status plants in the Mojave and Colorado deserts (California and Nevada), the Tehachapi Mountains and the Central and San Joaquin valleys
- Extensive knowledge of Mojave and Colorado Desert flora and habitats
- Revegetation
- · Wetlands delineation

DESERT TORTOISE

- Recognized desert tortoise authority, with over 32 years experience studying desert tortoises in California, Nevada, Utah, and western Arizona; habitat specialist
- 2 advanced degrees involving desert tortoises
- Holds own handling and research permits from the USFWS and the California Department of Fish and Game
- Designed and implemented one of the largest and longest desert tortoise research projects to date approximately 130 tortoises were telemetered for 10 years to study reproduction, growth, home range, burrow use, dispersal within the context of forage production, size and gender
- Instructor for Desert Tortoise Council Technical Workshops and telemetry use; train construction employee groups and tortoise monitors for construction projects
- Over 25 Bureau of Land Management (BLM)-type trend plots or other mark-recapture plots for population studies and >3000 transects to assess relative densities
- Impacts assessment, mitigation development numerous projects
- · Development of TRED density sampling model
- Construction monitoring and development of monitoring protocol
- Contributor to development of methodologies for USFWS survey and handling protocols
- A primary reviewer of USFWS original listing package for desert tortoises
- Contributor to Clark County Habitat Conservation Plan, West Mojave Plan, and Northern and Eastern Colorado Coordinated Management Plan

OTHER WILDLIFE

- Extensive knowledge of southwestern reptile and amphibian fauna
- Extensive small-mammal (rodents) trapping studies in California, Nevada and Arizona, including Mohave ground squirrel and other special-status rodents.
- Survey, research, and permitting experience with the following listed species: Valley elderberry longhorn beetle, Shasta salamander (permitted), Tehachapi slender salamander, San Joaquin kit fox
- · Burrowing owl surveys and mitigation
- Numerous bird surveys in desert habitat.
- Mojave ground squirrel permitted to conduct trapping

PERMITS HELD

- Federal 10(a)(1)(A) for Desert Tortoise (permit in Alice Karl's name) (TE 746058-11)
- State MOU for Desert Tortoise
- California Scientific Collection Permit (SC001368)
- Mohave Ground Squirrel trapping (Authorized field Investigator on W. Vanherweg permit)

EDUCATION

- Ph.D., Ecology University of California, Davis. January 1998. Dissertation: Reproductive strategies, growth patterns, and survivorship of a long-lived herbivore inhabiting a temporally variable environment.
- M.S., Biology California State University, Northridge. 1982. Thesis: The distribution, relative densities, and habitat associations of the desert tortoise, *Gopherus agassizii*, in Nevada.



Miles Kenney, PhD, PG Senior Project Geologist

Quaternary Geologist-Geomorphologist

Resume

SUMMARY

Dr. Kenney has over 16 years professional experience in the geotechnical engineering industry with an emphasis on evaluating seismic hazards, Quaternary Geomorphology and Geology. Areas of expertise include evaluation of desert landscapes (playa lakes, alluvial fans, aeolian systems - dunes), basin scale stratigraphy (assists in groundwater studies), paleoseismology, structural geology, igneous and sedimentary petrology, fault hazard evaluation, and neotectonics. Recent areas of interest include conducting evaluations of aeolian sand (dunes) and ancient playa lakes for proposed large scale solar energy projects in the Basin and Range Geomorphic Provence His experience includes fault trenching, field mapping, drilling (geotechnical, groundwater, gas probes), surveying, morphostratigraphic relationships, stratigraphy, soil profile analysis, fault slip vector determinations, aeolian sand providence and migration studies, estimates of anticipated moment magnitude and slip per event, and aerial photograph interpretation. Dr. Kenney's geotechnical experience includes slope stability evaluations and mitigation, large to small scale diameter drilling, geologic mapping, percolation rate determinations, seepage evaluations, cross-sections, drafting, report preparation, and grading observation and testing.

From 2004 to 2008, Dr. Kenney conducted large scale fault studies and stratigraphic evaluations in the eastern Coachella Valley. Other large scale projects include the principle investigator to provide the current fault hazard map utilized by Riverside County, detailed geologic mapping of the eastern San Gabriel Mountains (Morton and Miller, 2006) and providing fault slip vector analysis for two major high pressure gas pipelines extending from southern California to Texas.

Specific client experience has included residential, commercial, educational, transportation, solar energy, wind turbine energy, and municipal projects. Dr. Kenney has shown the ability on numerous projects within complex geologic areas to provide reasonable hypothesis and geologic solutions utilizing geologic fundamentals.

EXPERIENCE

2009 - Present

Geomorphologist on Clean Energy Projects – Independent Contractor

Client: Earth Systems Global. Wind Turbine Generator Project (CA)

Dr Kenney performed field mapping, drilling and sampling for proposed wind turbine electric generators site locations for the Alta Wind Energy Project located in the Tehachapi Mountains, western Mojave Desert, California along the Garlock Fault Zone.

Client: WorleyParsons. Genesis Solar Energy Project – Aeolian and Ancient Playa Lake evaluation (CA)

Performed a detailed and quantitative assessment of the aeolian system near the Project and evaluated the behavior of ancient playa lakes within Ford Dry Lake.

Client: WorleyParsons. Tonopah Solar Energy Project – Aeolian evaluation (NV) Performed a detailed and quantitative assessment of the aeolian system and evaluated the behavior of the Crescent Dunes in Big Smokey Valley near Tonopah, Nevada.

Miles Kenney, PhD, PG

Senior Project Geologist Quaternary Geologist-Geomorphologist

Resume

Client: AECOM. Palen Solar I Project – Aeolian and Ancient Playa Lake evaluation (CA) Aeolian sand and ancient playa lake shoreline studies for the Palen I Solar Energy Project located in the Chuckwalla Valley, Riverside County, California. Projects involved geologic mapping with an emphasis on geomorphology, aeolian sand sources, deposits and migration, local stratigraphy, and soil profile evaluation.

Client: AECOM. First Solar I Project – Aeolian evaluation (CA).

Aeolian sand migration and deposition for the First Solar I project in the Chuckwalla Valley, California. Projects involved geologic mapping with an emphasis on geomorphology, aeolian sand sources, deposits and migration, local stratigraphy, and soil profile evaluation.

Client: SWCA & NextEra. White Water Wash Wind Turbine Generator Project (CA) Performed a geomorphic evaluation of the Quaternary behavior of the White Water Wash located in the Banning Pass region of southern California. The study involved the analysis of fill and cut stream terraces to qualitatively asses the long term behavior of the stream (lateral migration, scour depths, etc).

Client: WorleyParsons. Quartzsite Solar Energy Project (AZ) Provided a preliminary geotechnical assessment report for the site.

2009 - Present

Geotechnical Geologist (Paleoseismology) – Independent Contractor

Fault Investigations on the Banning, Rialto Colton and Desert Hot Springs Fault Zones. These investigations included:

Client: Earth Systems SouthWest - Banning High School. Soil/Stratigraphy Evaluation. Evaluated the soils profiles and local stratigraphy to assist in the evaluation of potential fault activity for aerial photograph lineaments possibly associated with faulting. This study showed that no faulting had occurred in the region during the Holocene.

Client: Earth Mechanics via Caltrans. Fault Investigation.

Fault investigation on the Rialto-Colton Fault Zone which is a secondary splay from the San Jacinto Fault Zone. This study involved evaluation of a fault trench to determine whether or not Holocene faulting had occurred in the region of a Cal-Trans bridge for Interstate Highway 10.

Client: City of Desert Hot Springs. Fault Investigation.

Fault investigation on the Desert Hot Springs Fault in the City of Desert Hot Springs, Coachella Valley, California. This study involved fault trenching across the mapped trace of the Desert Hot Springs Fault and determined for the first time that this fault is not active under the State of California fault evaluation guidelines.

Miles Kenney, PhD, PG

Senior Project Geologist Quaternary Geologist-Geomorphologist

Resume

2002 - 2009 Senior Project Geologist, Fault Hazard Specialist –Petra Geotechnical, Inc., San Diego, CA

<u>Fault evaluation of the Coachella Fan, Indio Hills and San Andreas Fault Zones (2004 to 2008)</u>

From 2004 to 2008 Dr. Kenney was the principle investigator on a number of very large scale fault investigations encompassing over 6000 acres. These studies accumulated approximately 30 linear miles of trenching in the region of the Coachella and southern portion of the Indio Hills fault zones. In this area, the style and age of faulting was very poorly understood and these studies were the first to fully evaluate the character of faulting in the region. Morphostratigraphic relationships correlating preserved fan surfaces with their respective deposits within nearby drainages were the key concept in providing age control of faulting. Detailed mapping was conducted in the Ocotillo Conglomerate and likely correlatives of the Palm Spring Group. Dr. Kenney presented the hypotheses that many of the previously mapped faults in the region resulted from coseismic shaking induced landslides and not tectonic faulting. He believes that this type of deformation has likely occurred in other localities within the Salton Trough region in similar sediments and geomorphic terrains.

Dr. Kenney was also the principle investigator for numerous fault studies conducted on the San Andreas Fault within the eastern Coachella Valley within State of California Earthquake Fault Zones.

Fault evaluation of the San Jacinto Fault Zone - Sycamore Flats, CA

Dr. Kenney was the principle investigator to conduct a fault evaluation of the active San Jacinto Fault Zone at Sycamore Flats.

Fault evaluation of the Elsinore Fault Zone - near Corona, CA

Dr. Kenney was the principle investigator to conduct a number of fault investigations along the northern strands of the Elsinore Fault Zone.

2001 Staff Geologist, Geotechnical Engineering – Leighton & Associates, Temecula, CA

Dr. Kenney worked with Leighton and Associates during the summer months while not teaching at San Diego State University. This work primarily included performing geotechnical engineering studies for proposed developments. Work included drilling, test pits, mapping igneous, metamorphic and sedimentary units and identifying land slides.

2000 - 2008 Geology Lecturer

Dr. Kenney taught Geology 100, Geology of the National Parks and Monuments, Natural Disasters and Geology Lab 100.

| > | 2007 – 2008 | College of the Desert, Palm Desert, California |
|-------------|-------------|--|
| > | 2000 - 2005 | San Diego State University, San Diego, California |
| > | 2001 – 2002 | Grossmont, Mesa, and San Diego City Community Colleges, San Diego, |
| | | California |

Miles Kenney, PhD, PG Senior Project Geologist

Senior Project Geologist
Quaternary Geologist-Geomorphologist

Resume

1999 - 2002 Project Geologist, Fault Hazard Analysis – Earth Consultants International, Southern California Safety Element Report for the Riverside County (1999 - 2000)

This is a comprehensive geologic hazard report for the entire county of Riverside. Dr. Kenney's contribution included principle investigator to compile geologic mapping information regarding fault locations and activity, and collecting earthquake location data. He was responsible to compile, and manage the production of the most detailed fault map produced to date for Riverside County. Based on the analysis, we proposed additional Fault Hazard Zones (Alquist-Priolo) for numerous faults within the county, most of which were adopted by the County Geologist. Project – Project name plus description. This map currently utilized by Riverside County.

Slip Vector Determinations for a High Pressure Gas Pipeline Crossing Active Faults in Southern California.

This was a series of projects that involved determining the accurate location, probable magnitude, and amount and type of displacement during future quakes for various faults that a high-pressure gas pipeline transected in Southern California. Trigonometric relationships were developed to determine the tensional and compressional components of slip induced on the pipeline based on our estimate of the type and magnitude of displacement across the fault.

Fault evaluation of the Palos Verdes Fault in the Palos Verdes Hills (1999-2000)

This project involves fault trenching within the Palos Verdes Fault Zone and to perform detailed geologic mapping in the deformed late Quaternary sediments. The project is within the Rolling Hills Estates and the Chandler Quarry, which provides exceptional exposures of the late Quaternary sediments. The geology at the site is magnificent due to the syn-deformational deposition of the sedimentary rocks during motion on the Palos Verdes Fault and development of the Gaffey Anticline-Syncline fold pair in the hanging wall rocks during the past 300-400 thousand years.

1994 - 1999 Research Assistant, Geology – University of Oregon, Eugene, OR

Geologic Map of the 7.5-minute Mescal Creek Quadrangle (Dissertation)

Geologic mapping for the Federal EDMAP program of the 7.5-minute Mescal Creek quadrangle, San Gabriel Mountains, Mojave Desert, southern California. Dr. Kenney also partially mapped in the adjacent Valyermo and Phelan 7.5-minute quadrangles. The mapping was conducted between 1994 and 1997 and involved highly deformed para- and orthogneisses, late Tertiary sedimentary rocks (Phelan Peak, Harrold and Shoemaker Formations) and the Victorville Fan. The information collected from this mapping was utilized to interpret the local and regional kinematics and offset history of the San Andreas Fault System, which is discussed in my dissertation completed at the University of Oregon, dated December, 1999. The map was submitted to the USGS and will be utilized in the Southern California Aerial Mapping Project (SCAMP) effort and incorporated into the published 30X60' Quad geologic map by Morton and Miller (2006).

Miles Kenney, PhD, PG

Senior Project Geologist Quaternary Geologist-Geomorphologist



Quaternary Uplift in the Eastern San Gabriel and Western San Bernardino Mountains (Dissertation)

Kinematic and tectonic history of the eastern San Gabriel Mountains and western San Bernardino Mountains, southern California. The causes of surface deformation due to the late Quaternary faulting was examined using regional structure contour maps, structural geologic relationships, age data of late Tertiary sediments, balanced cross-sections, re-located earthquakes, focal mechanisms, and summed moment tensor analogues for focal mechanisms. This worked confirms earlier studies that a subsurface restraining bend and lateral ramp exists in the San Andreas Fault in the eastern San Gabriel Mountains. This feature probably resides at a depth of 8-10 km beneath Wrightwood, and has caused basement folding and compression to migrate toward the northwest form the western San Bernardino Mountains during the past 1 million years. Dr. Kenney also concluded that the high peaks region of the San Gabriel Mountains represents basement folding into a northwest-southeast trending basement antiform developed during the Quaternary. This fold developed at the restraining bend between the San Jacinto and San Andreas Faults.

1992 - 1993 Research Assistant, – San Diego State University, San Diego, CA

This work was part of the paleoseismic study for the Elsinore fault zone discussed earlier.

1989 - 1993 Staff Geologist, Geotechnical Engineering – Leighton & Associates, Southern CA

Fault Investigation – Elsinore Fault Zone. Performed a paleoseismic study on the Elsinore and Murrieta Creek fault zones to determine slip rate and local kinematics. This study, conducted with Dr. Thomas Rockwell (SDSU) determined a minimum slip rate of 4.5 mm/yr for the Elsinore Fault Zone.

Fault Investigations for State of California Earthquake Fault Zones- Dr. Kenney logged and evaluated thousands of feet of fault trenches on numerous projects associated with the Elsinore, San Jacinto and Murrieta Hot Creek fault zones.

1988 Geochemist, Radioisotope Department – Naval Ocean Systems Center, San Diego,

▶ This research is classified.

Miles Kenney, PhD, PG

Senior Project Geologist Quaternary Geologist-Geomorphologist

Resume

EDUCATION

Ph.D. Geological Sciences, University of Oregon (Advisor: Dr. Ray Weldon), 1999
 BS Geological Science & Chemistry, San Diego State University, 1989

REGISTRATIONS/AFFILIATIONS

Registered Professional Geologist, California PG 8246
San Diego Association of Geologists
Seismological Society of America
Geological Society of America
Southern California Earthquake Center – SCEC

PUBLICATIONS/PRESENTATIONS

PUBLICATIONS

Kenney, M.D., 2007, Late Quaternary Deformation and Sedimentation in the Coachella Fan region between the Mecca and Indio Hills, northeast of San Andreas fault, California; AEG News (Program with Abstracts), dated July 7, 2007.

Kenney, M.D., Weldon, R.J., 1999, Timing and magnitude of mid to late Quaternary uplift of the western San Bernardino And northeastern San Gabriel Mountains, Southern California: in Reynolds, R.E., and Reynolds, J. editors, Tracks along the Mojave: San Bernardino County Museum Association Quarterly, vol. 46 (3), pp. 33-46.

Kenney, M.D., Weldon, R.J., 1998, Geologic Map: Mescal Creek 7.5-minute quadrangle, Northeastern San Gabriel Mountains, Southern California: Geological Society of America Abstracts with Programs, v. 30, No. 5, p.23.

Kenney, M.D., Weldon, R.J., 1996, Deformation of Table Mountain in the northeastern San Gabriel Mountains, southern California: Geological Society of America Abstracts with Programs, v. 28, No. 5, p.81.

Kenney, M.D., Weldon, R.J., 1996, A subsurface restraining bend in the Mojave segment of the San Andreas Fault, northeastern San Gabriel Mountains, California [abs.]: American Geophysical Union, Supplement to EOS, v.77, no.46, p. F743.

Bergmann, M.C., Rockwell, T.K., **Kenney, M.D.**, Hirabayashi, K.C., Huhebeck, M.A., Haraden, C.C., Thomas, A., and Patterson, A., 1993, Preliminary Assessment of the Late Holocene Slip Rate for the Wildomar Fault, Murrieta, California: Final technical report for U.S. Geological Survey External Research Program, Contract 14-08-001-G2062, 12.

Rockwell, T., Bergmann, M., Kenney, M., 2000, Holocene slip rate of the Elsinore Fault in Temecula Valley, Riverside County, California: in Geology and Enology of the Temecula Valley Area, Riv-

Miles Kenney, PhD, PG Senior Project Geologist Quaternary Geologist-Geomorphologist

Resume

erside County, California: edited by Barbara Birnbaum, San Diego Association of Geologists (in press). Note: This work will be submitted to BSSA within the next 3 months.

Schell, B.A., **Kenney, M.D.**, 2007, Soil stratigraphy and morphostratigraphy along east side of Coachella Valley, California; AEG news (Programs with Abstracts), dated July, 2007.

PROFESSIONAL GEOTECHNICAL PRESENTATIONS

American Association Petroleum Geologists (AAPG), 2001 presentation

American Engineering Geologists (AEG), 2006 (3 presentations), 2007 (2 presentations)

San Bernardino County Museum (SBSM), 1999 presentation

San Diego Association of Geologist (SDAG), 2000 presentation, 2008 presentation

Southern California Geologic Society (SCGS), 2008 presentation, 2009 (3 presentations), 2010 (1 presentation scheduled)

Desert Symposium (Zyzzyx Study Center), 2004 Presentation

Technical Advisory Committee (TAC) for State Mining Board, 2008 and 2009 Presentations – Reviewing the Guidelines of the State of California Earth Quake Fault Zone Act of 1972

AWARDS AND HONORS

Awarded Most Outstanding Graduate from the Department of Geological Sciences, San Diego State University, 1989 (out of 45 students)

R.C. Baker Foundation Scholarship, 1986 & 1987

Rollin and Caroline Eckis Grant, 1987 Scholarship awarded by the Department of Geological Sciences, San Diego State University, 1988

General Profile

Preferences

This page allows you to print the general profile information you have provided.

| ersonal Information | |
|--|---|
| Glen King United States—California—Lancaster gxk0qwo@fpl.com | |
| Employee Number | 12554 |
| Primary Contact Number | 760-762-3100x231 |
| Secondary Contact Number | 661-202-5837 |
| Preferred First Name | |
| ork Experience | |
| Current Job | Yes |
| Employer | FPL Energy Operating Srvs, Inc |
| Start Date | Oct, 1997 |
| End Date | May, 2010 |
| Achievements (max 3000 characters) | Overseeing safety and environmental tasks for the SEGS II VII and the SEGS VIII & IX facilities. |
| Current Job | No |
| Employer | Constellation Energy |
| Start Date | Jan, 1992 |
| End Date | Oct, 1997 |
| Achievements (max 3000 characters) | Power plant operator at the SEGS VIII & IX facilities. Duties included solar field maintenance, Heater Operator, Outside Operator, Inside Operator and Water Treatment Operator |
| Current Job | No |
| Employer | Luz Engineering |
| Start Date | Oct, 1991 |
| End Date | Jan, 1992 |
| Achievements (max 3000 characters) | Solar field mirror wash supervisor at the SEGS VIII & IX facilities |
| ducation | |
| Institution | University of California, Riverside (UC Riverside) |
| Education Level | Non-Degree Program (14 years) |
| Major | Physics/Applied Science |
| Institution | Palmdale High School |
| Education Level | High School Diploma/GED (11 years) |
| Major | |

| Joh | Fie | ы | Prefe | ere n | CAS |
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Legal/ Regulatory

Operations & Maintenance

Environmental

Location Preferences

USA — California — Boron

USA — California — Hinkley

Organization Preferences

NextEra Energy Resources — NextEra Energy Project Management, LLC

NextEra Energy Resources — NextEra Energy Operating Services, LLC

NextEra Energy Resources — NextEra Energy Maine Operating Services, LLC

Job Posting Notification

Send an email notification whenever a new position matching this profile is posted.

No

| Attachments | Harry (C.) | | |
|------------------------|-------------|----------|--|
| Attachments | | | |
| File Name | Date | Comments | |
| No files are attached. | | | |



Resume

SUMMARY

Over ten years of environmental experience, specializing in air quality, noise, and traffic. Air pollution compliance experience includes permit applications, calculating construction and operational emissions, and annual emission inventories. Traffic and transportation experience includes analyzing and preparing traffic plans, conducting Level of Service (LOS) analysis for roadways and intersections, and conducting traffic studies for construction projects. Experienced in preparing siting studies which take into account environmental and economic factors. Completed technical narratives and reviews of National Environmental Policy Act (NEPA) and CEQA documents including Initial Study (IS)/EA, EIS/EIR, and Negative Declarations. Stormwater experience includes writing stormwater pollution prevention plans (SWPPP), inspecting best management practices (BMP), and staff training. Hazardous materials experience includes writing spill prevention control and countermeasures (SPCC), and hazmat plans.

EXPERIENCE

2008-Present

Senior Engineer – WorleyParsons, Sacramento, California

Ms. Marchek is assigned to the WorleyParsons Infrastructure & Environment group to support site selection, permitting, and compliance issue resolution for power plants and other projects.

Author of Agricultural and Soils, Hazardous Waste, and Traffic Sections for Authority for Construction (AFC) prepared for the California Energy Commission (CEC) for a solar power plant. Worked with Caltrans and county transportation department to discuss mitigation for traffic impacts. Determined level of service (LOS) for roadways around the project. Contributor to Air Quality, Geology and Water Resources sections.

Prepared two siting studies for solar power projects for the Sacramento Municipal Utility District. Performed fatal flaw analysis and environmental screening for renewable energy projects for the local electric utility. Evaluated potential optimal locations to site a solar power plant where generated electricity could be co-transmitted with renewable energy from wind or geothermal generation. Determined traffic and transportation impacts of siting a solar facility.

Contributing author for a solar power project site analysis and selection study in support of the implementation of a large scale solar project in Oman. Identified key factors that influence the optimal location of a solar power facility in Oman with net power output ranging from 50 MW to 200 MW. Recommended four potential large-scale solar power project sites based on technology constraints and environmental factors.

Project Manager for the Air Quality Analysis and Permitting for the City of Pasadena's Broadway Power Plant Repowering Project. Includes emission estimations, Title V permitting, and Continuous Emission Monitoring System Verification.

Completed a traffic analysis for construction of a new biodiesel plant in Richmond, CA as part of a CEQA Initial Study. Measured traffic counts and conducted intersection analysis.

Calculated emissions and negotiated an exemption from air permitting for a soil remediation project within the San Joaquin Valley Air Pollution Control District. Reviewed air permits for a power plant retrofit in the South Coast Air Quality Management District. Recommended emissions controls and upgrades to lower emissions.

Completed permitting for removal of gasoline and diesel underground storage tanks in the San Francisco Bay development zone, including permitting with County Health Services, fire department,

JMarchek 4-2010 - Traffic 1 **Eco**Nomics







building department, Bay Area Air Quality Management District and the Bay Conservation and Development Commission.

Prepared a dust control plan for a solar power project near the Mojave Desert. Estimated project particulate emissions with and without dust control. Researched and recommended dust palliatives for the project.

Prepared water resources analysis for solar power plant projects in California, Nevada, Arizona and New Mexico. Completed required environmental documents including Report of Waste Discharge and Aquifer Protection Permits.

To support evaluation of potential bird exposure to selenium and salt in an evaporation pond, modeled brine chemistry to evaluate potential exposure concentrations under various pond management scenarios and developed recommendations for pond management and monitoring.

Prepared Aquifer Protection Permit technical basis document for evaporation ponds and soil treatment land farm for two solar power plants in Arizona, including demonstrating Best Available Demonstrated Control Technology (BADCT).

Prepared SWPPPs for two high voltage DC converter station sites. Reviewed other environmental mitigation plans. Prepared SPCCs for four electrical substations for a regional utility company.

2005 - 2008 Project Manager - Burleson Consulting, Folsom, California

SPCC Plan and Hazmat Plan, Edwards Air Force Base (AFB), California – Completed the five year update to Edward AFB's SPCC. Coordinated the inspections of all new and modified above ground storage tanks and oil handling equipment at the base, encompassing more than 4 million gallons of above ground petroleum storage. Updated the plan to meet current regulations and best management practices. Also completed an update to the Edwards AFB Hazmat Plan, including 55 separate sites.

Categorical Exclusions (CE) for Maintenance Activities for Western Area Power Administration. Northern California – Assisted in the preparation of over 30 NEPA CEs for Western in 2005 and 2006. Used the Rare Finds California Natural Diversity Database (CNDDB) to determine special-status species proximity to the transmission lines.

SWPPP, Campbell Soup Supply, Dixon and Stockton, California – Prepared construction and Industrial SWPPPs and monitoring plans for the tomato processing facilities. Conducted a baseline assessment, hazardous waste/material facility audit, and reviewed their practices to determine compliance. Provided recommendations for best management practices to minimize storm water contamination.

SPCC, Campbell Soup Supply, Sacramento and Dixon, California – Updated the SPCCs for the food processing facilities. Recommended BMPs and secondary containment measures for aboveground storage tanks. Reviewed emission calculations including greenhouse gas emissions from a boiler retrofit. Monitored construction environmental compliance.

Task Manager – Burleson Consulting, Folsom, California

California Environmental Quality Act (CEQA) Mitigated Negative Declarations (MND) Sacramento Municipal Utility District (SMUD), Sacramento, California – Responsible for preparation of the air quality, noise, and traffic sections for six MNDs for electrical utility projects for SMUD. These projects include the Hedge Training Facility, Promenade Substation, Advanced Data Center at McClellan AFB, and construction of artificial wetlands at Rancho Seco. Estimated construction and



operating emissions using URBEMIS. Provided environmental training and compliance monitoring for project construction.

NEPA Environmental Assessment (EA) Beale AFB, California - Responsible for the air quality, traffic, and noise sections of a multi-project EA for Beale AFB. Assisted in the surveys of the ten project sites and verified the presence of vernal pools. Calculated the emissions from construction and operation of the project sites including estimation of seasonal burning and preparing a basewide burning plan. Interfaced with the Feather River AQMD for the authority to construct and permit to operate for a new rock crushing unit at the site. Conducted a LOS analysis to determine traffic impacts of the projects at the base.

NEPA and CEQA Supplemental Environmental Impact Statement (EIS) and Environmental Impact Report (EIR) Western Area Power Administration, Northern California - Responsible for the preparation of the air quality, noise, and traffic sections for the Supplemental EIS and EIR which involved over 40 miles of new transmission lines. Interfaced with three air districts to determine air emission modeling and mitigation requirements. Conducted traffic analysis and prepared a traffic control plan for project construction. Assisted with the preparation of the public involvement plan, staffing execution plan, and quality assurance plan.

EA and IS for Farmington Groundwater Recharge Program, Stockton East Water District (SEWD), Stockton, California - Completed an EA and IS and worked with the USACE for a proposed pilot scale recharge site located at the SEWD facility.

Air Quality Engineer, Sacramento Metropolitan Air Quality Management District, 1999 - 2001 Sacramento, California

Responsibilities included developing, maintaining, and analyzing emission inventories. Member of the program coordination team which conducted CEQA review and rule development.

- Designed a new emissions inventory database for the Air District.
- Inspected area businesses for compliance with air pollution regulations.
- Assisted businesses with permit applications and emission calculations.
- Reviewed annual air emission inventories, applications for authority to construct, permits to operate and evaluated compliance with CEQA.

1993 - 1999 Design Engineer, Autoliv Automotive Safety Products, Ogden, Utah

Designed airbags for automotives. Worked on projects from research and development stage to full production. Supervised pilot plant scale testing equipment for pyrotechnics, extruders, spray dryers, and tablet presses. Prepared Hazmat plans and safety training materials.

EDUCATION

B.S., Chemical Engineering, Brigham Young University, 1993

REGISTRATIONS/AFFILIATIONS

Association of Environmental Professionals

SPECIFIC TECHNICAL EXPERTISE/SPECIALIST COURSES

Air Emissions Calculations, AERMOD, URBEMIS, EMFAC

P. Duane McCloud, P. E. 5041 SE Devenwood Way Stuart, FL 34997

Education: B.S. Chemical Engineering. University of Akron, Akron, OH. May 1982

Experience: NextEra / FPL Energy, Juno Beach, FL

Project Manager/Renewable Energy Project Lead Engineer in the Project Due Diligence and Development Groups, 10/97 to Present

- Technical lead for permitting support for all corporate solar thermal and solar photovoltaic projects, including thermal projects of 200 MW or more in three southwestern US states. Technical lead for permitting for two 50 MW solar thermal projects in Spain.
- Corporate lead for technical evaluation of all solar power technologies, including solar thermal, photovoltaic, and emerging technologies, incorporating evaluation of feasibilities, development position, and estimation of future economics
- Technical lead for development of corporate expansion for new solar power generation, including development of updated concepts, pricing, sourcing, impact analyses, and for general siting of new projects.
- Technical lead for over a dozen CTCC development opportunities throughout the United States, including due diligence of the opportunities, coordination of permitting activities, and technical aspects of application submittal and approval for two projects including full CEC process permitting in California.
- Technical due diligence lead for evaluation of fossil power plant asset acquisitions in New York, Connecticut, California, Massachusetts, Maine, and Rhode Island
- Technical lead for conceptual design, proposal development, and agreement follow-up for the Long Island Offshore Wind Park, including basic due diligence, research of European lessons learned, and US source development
- Both led and participated in the development of key due diligence and transition processes for multiple project applications
- Due diligence lead and restoration plan development for the retired Coldwater Creek geothermal facility; technical lead on transition to operation of Coso power facility
- Technical due diligence lead for the successful bid for acquiring the PG&E Geysers assets in Northern California and the Ormesa and GEM assets in Southern California
- Key project support roles in additional development/acquisition opportunities in New Hampshire, Colorado, Nevada, Arizona, and Florida
- Company representative to CII research team for engineering productivity measurement
- Project technical review for the geothermal development opportunity at Karaha Bodas in Java, Indonesia (project suspended) including technical support for international lawsuit
- Technical review and project coordination for all Company geothermal projects: Brady, Calistoga, East Mesa, and Coso, in Nevada and California

PKS / CalEnergy / Magma Power, Calipatria and Pasadena, CA Senior Project/Process Engineer, The Ben Holt Company and CEOC Engineering and Technology Division, 12/94 to 10/97

- Engineering Project Manager for the Patuha 1 Geothermal Project in Java, Indonesia and for the standard plant design for CalEnergy's Indonesian Program
- Lead Project Engineer/Assistant Project Manager for the Dieng 1 Geothermal Project in Java, Indonesia. Project commissioning completed in early 1998.

- Responsible for overall coordination of design, equipment specification, inspections
 of equipment and sites both domestically and internationally, approval of design and
 construction standards, interface with owner and construction partner
- Development and implementation of cost savings alternatives in new plant designs
- Continued involvement in other projects calling for expertise in fossil power cycles, wastewater treatment, and ultrapure water systems
- Due diligence of international acquisition opportunities for fossil assets
 Assistant Plant Manager and Plant Engineer, Vulcan/Hoch Plants. 1/90 to 12/94
- Responsible for overall operations and coordination of activities for two triple flash geothermal power facilities
- Functioned as liaison between upper management and technical personnel in key areas including technical presentations
- Managerial duties included budget preparation and cost control. Came in under budget for O&M expenses all three years in this position.
- Other leadership tasks included personnel matters, hiring, promotions, development of training curriculum, and shutdown scheduling
- Shutdown schedule and costs controlled within budgets and time frame for planned maintenance scopes
- Engineering responsibilities included performance monitoring, controls engineering and configuration, and project management
- Control system projects included installation of a new turbine control system, upgrades to existing DCS systems, installation of control subsystems, and various process instrumentation improvements and changes
- Chemically related projects included chemical monitoring systems, process system changes and installations, environmental controls and cleanups, and plant process efficiency improvements
- Specific technical expertise developed in the areas of cooling water, process chemistry, process automation, corrosion, and process unit operations

American Electric Power Service Corporation, Canton & Columbus, OH Engineer II, Mechanical Engineering Division. 6/82 to 1/90

- Responsible for monitoring and direction of chemically related activities as primary corporate contact for a total of nine different major coal fired power generating facilities ranging from 40 to 1300 MW units
- Developed and monitored boiler water and cooling water treatment guidelines
- Expertise in coal sampling, preparation, and analysis methods and monitoring. Represented Company as voting member to ASTM D5 in this area
- Specification of water, steam, and waste sampling and analysis methods
- Technical coordinator for fuel reporting database system including design of system requirements and personnel training
- Project management for two wastewater treatment system expansions, ultrapure
 water system improvements, water pretreatment system modifications, a variety of
 chemical feed and storage systems, nitrogen feed systems, and drinking water system
 installations and upgrades
- New plant design responsibility for chemical systems for the conversion of a major steam power facility from nuclear to fossil fuel operation and a new 1300 MW fossil fired facility
- Performed plant systems and laboratory audits, evaluated QA programs, monitored chemical cleaning operations, performed new plant system startups, and developed specifications for technical purchasing.

Specialized: Training & Memberships Registered Professional Engineer, State of Ohio. 9/88

Member, American Institute of Chemical Engineers. 5/81 to present

Member, Geothermal Resource Council 1997-2009.

Integrated Configuration and Software Technologies, Foxboro Training Institute.

Management II Training Program, Louisiana State University. 2/92 Supervisory Certificate Program, University of San Diego. 4/93

Who's Who in America, 1998 through 2008

William N. Orr, Ph.D.

Paleontologist and Geologist

Education

B.S. Geology, Oklahoma University, 1961

M.S. Geology/Paleontology, University of California, Riverside, 1963

Ph.D. GeologyPaleontology, Michigan State University, 1966

Qualifications

Registered Geologist/Paleontologist Oregon and Washington*

Approved by: FERC, California Energy Commission, California Division of State Lands

Experience

Over 40 years of professional experience in paleontology and geology.

Paleontologic Consulting

Extensive experience in paleontologic research throughout North America and 25 years of consultant experience in paleontologic salvage in Oregon, Washington, California, Utah, Nevada, Idaho, Colorado, and Wyoming. Paleontologist consultant for the 360 Networks Fiber Optic Network (Oregon Border to Sacramento), North Baja Gas Pipeline Project (Mexican border through California to Arizona border), 57C Project in the Sacramento Delta, and Inland Empire Energy Center in Romoland, CA. Other projects include right-of-way for power lines, gas pipelines, and highways.

Director of State Museum of Paleontology (The Condon Museum), Eugene, Oregon Since 1982 Dr. Orr has been the director of the State Museum including responsibility for curating paleontologic collections.

Emeritus Professor of Geology, University of Oregon

Professor of Geology responsible for teaching geology and paleontology as well as training and supervising M.S. and Ph.D. students in these specialties.

Oregon State Board of Geologist Examiners

Board Member since 1996 including Board Chair from 1999 to 2006.

Paleontological Society, Cordilleran Section, Past President

Publications

Oregon Fossils, Kendall Hunt, 1998, Geology of Oregon 5th ed, Kendall/Hunt, 2000, Geology of the Pacific Northwest McGraw Hill, 2002, Oregon Water, Inkwater Press, 2005, Handbook of Oregon Plant and Animal Fossils, 1981, etc.

Over 100 papers in paleontology and geology

References

Dr. John Bealieu, Former Head Department of Geologic and Minerals Industries, 503-234-6323

Susana Knight, Executive Secretary, Oregon State Board of Geologist Examiners, 503-566-2837

* Dr. Orr is co-owner of Paleontology Associates INC., a privately owned geological-paleontological consulting firm that specializes in salvage paleontology. Paleontology Associates includes registered geologists holding professional registration to operate in the State of California as geologists/paleontologists.

Email: <u>rr_bll@yahoo.com</u>

Cell: 541-913-6329 Office: 541-346-4577

Fax: 541-346-4692

Large projects we have worked on include:

- 2002 North Baja Gas Pipeline (Southern California)
- Pico Power Plant (San Jose, CA)
- Falcon Transmission Line Project (Eureka to Elko, Nevada)
- Nevada 120 KV Transmission Line Project (Fort Churchill to Buckeye)
- PG&E Gas Transmission 2003 Expansion Project (WA and OR)
- McDonald Island Gas Transmission Project (Stockton, CA).

More recent projects include:

- L-57C Gas Transmission Project (Sacramento Delta)
- EnCana Gas Transmission Project (Grand Junction, CO)
- Williams Gas Transmission Project (Coos Bay to Klamath Falls, OR)
- Kanda Pipeline Project (Vernal, UT to Rock Springs, WY)
- PG&E Line 108 Pipe Replacement Project (Elk Grove to Thornton, CA)
- Inland Empire Energy Center (IEEC) (Romoland, CA)
- Palomar Project (Maupin to Wauna, OR)
- Blythe Energy Project Transmission Line (Blythe to Chiriaco Pass, CA)
- Gaskell Solar Power Project (Kern and Los Angeles Co. CA)
- Alta Vista Solar Power Project (Los Angeles Co, CA)
- Willow Springs Solar Power Project (Kern Co, CA)
- Laguna Beach Sewer Interceptor Tunnel (Orange Co, CA)



Steven C. Richards Electrical Engineering Associate

Resume

SUMMARY

Licensed Engineer-in-Training specializing in the Lead Electrical front end engineering and design (FEED) of renewable power generating facilities especially utility photovoltaic facilities and grid interconnection. WorleyParsons' experience includes: preliminary concentrating solar thermal and photovoltaic power plant design, California Energy Commission (CEC) Application for Certification (AFC) development and support, Federal Energy Regulatory Commission (FERC) large generator interconnection process (LGIP) support, power plant Engineering Procurement and Construction (EPC) specification and Request for Proposal (RFP) development, owner's engineer (OE) through construction, and preliminary generator interconnection design.

EXPERIENCE

2007 - Present Electrical Engineering Associate, WorleyParsons, Folsom, California

BrightSource, Solar Electric Generating Station (SEGS) Projects – Projects include 2400 MW of CSP generation utilizing distributed power tower (DPT) technology. Responsibilities include writing the transmission section of the AFC to the CEC for the 400 MW Ivanpah project as well as addressing CEC data adequacy requests and supporting the LGIP for 7000 MW of DPT plants including conceptual auxiliary system design.

Florida Power and Light Energy (FPLE), Beacon Project, 250 MW linear (trough) CSP plant utilizing solar trough technology – Responsibilities include authoring the Transmission System Design, Transmission Line Safety and Nuisances, and Electrical Engineering Design Criteria sections of the AFC to the CEC, designing the conceptual interconnection switchyard, coordinating the interconnection design and EMF studies through WorkShare, and responding to CEC data requests and conditions for certification.

NextEra, Genesis Project, 250 MW linear (2x125MW) CSP plant utilizing solar trough technology – Responsibilities include co-authoring the Transmission System Design, Transmission Line Safety and Nuisances, and Electrical Engineering Design Criteria sections of the AFC to the CEC, designing the conceptual interconnection switchyard, coordinating the interconnection design and EMF studies through WorkShare, and responding to CEC data requests and conditions for certification.

Solar Reserve, Rice Project, 150 MW linear CSP plant utilizing solar trough technology – Responsibilities include co-authoring the Transmission System Design, Transmission Line Safety and Nuisances, and Electrical Engineering Design Criteria sections of the AFC to the CEC, designing the conceptual interconnection switchyard, coordinating the interconnection design and EMF studies through WorkShare, and responding to CEC data requests.

Complete Energy, Photovoltaic Project — Conceptual electrical system design, array layout, and Level 2 cost estimating for a 28 MW net nominal single-axis tracking photovoltaic plant utilizing crystalline Si modules in CA. Responsibilities include: development of equipment specifications, datasheets, and layout as well as 230kV interconnection design to obtain a Level 2 cost estimate and a project description for project permitting.

PG&E, 250MW PV Development Program – Conceptual electrical system designs, array layouts, and Level 2 cost estimating for 5 MW net nominal fixed and single and two-axis tracking flat-plate photovoltaic power generation plant designs. Responsibilities include managing the development of equipment specifications, datasheets, and layouts to obtain Level 2 cost estimates as well as the development of cost differentials for the electrical systems and interconnections of 10, 20, 100, 200MW plant sizes for the Feb 2009 CPUC filing. Continued support includes managing the drafting of the Technical Requirements section of the PG&E EPC Specification for future



Steven C. Richards Electrical Engineering Associate

Resume

15 and 20MW projects comprising the program and RFI and RFP technical support through EPC contract award.

PG&E, Vaca Dixon Solar Station - Preliminary design, equipment specification, permitting support, and owner's engineer for the 2MW PG&E Vaca Dixon Solar Station. Responsibilities include the development of the equipment specifications,12kV interconnection application, RFP support, bid evaluations, and owner's engineer activities throughout construction.

Kauai Photovoltaic Project – Conceptual electrical collection system design, array layout, and Level 2 cost estimating for 5 MW net nominal fixed and a single-axis tracking flat-plate photovoltaic and 2-axis tracking concentrating photovoltaic power generation plant designs on the island of Kauai. Responsibilities include development of equipment specifications, datasheets, and layouts to obtain Level 2 cost estimates.

Edison Mission Energy, Photovoltaic Project – Conceptual electrical collection system design, array layout, and Level 2 cost estimating for a 20 MW net nominal fixed flat plate photovoltaic plant. Responsibilities include: development of equipment specifications, datasheets, and layout to obtain a Level 2 cost estimate.

SMUD, **Site Selection project** – Responsibilities included high level grid interconnection best route and cost evaluation for relative cost-based site ranking for a 250 MW CSP plant in SMUD service territory

Nextlight, Site Selection Project – Preliminary interconnection design and cost estimating for six potential linear CSP plants. Responsibilities include interconnection conceptual design and high level cost estimate, and the development of the grid interconnection one-lines for each of the six linear CSP plants ranging from 100-250 MW.

Nextlight, Agua Caliente Project - Conceptual electrical system and equipment specification of a linear CSP plant in CA for development of the RFP package, a Level 3 cost estimate, and permit support. Responsibilities include: management of the development of equipment specifications, datasheets, and layouts as well as 500kV interconnection design to develop an RFP package, a Level 3 cost estimate, project description for project permitting, and DOE load guarantee application independent review.

CPS, Brauning Project – Development of the electrical distribution system for four GE LM 6000 gas turbine generators. Responsibilities include development of equipment specifications, datasheets, and equipment layouts to obtain a bid proposal cost estimate - project won.

CPV, Sentinel Project – Development for the electrical distribution system for five GE LMS100 gas turbine generators. Responsibilities include development of equipment specifications, datasheets, and equipment layout to obtain a bid proposal cost estimate - project lost, but environmental engineering and continued owner's engineer contract for the Sentinel project won.

TVA, Apalacia Hydro Project; plant 480V main auxiliary board replacement – Responsibilities include SEL551 and 587 station service transformer relay calculations and settings, main-tie-main switchgear with emergency diesel generator transfer logic and drawing verification, and associated SEL351 and 551 relay calculations and settings

1997 - 2006 Industrial Electrician/Warehouse Manager, WBCo Electric Service, Eureka, California

Responsibilities included layout, customization, testing, and project scheduling of low voltage motor control center projects and many other industrial electric applications projects, sales support, and webpage design for industrial electric used equipment resale.



Steven C. Richards Electrical Engineering Associate

Resume

EDUCATION

B.S., Electrical Engineering, Power, California Polytechnic State University, San Luis Obispo, 2007

REGISTRATIONS/AFFILIATIONS

Registered Engineer-in-Training - California, No. EIT 129402

SPECIFIC TECHNICAL EXPERTISE/SPECIALIST COURSES

Over 10,000 MW of FERC Large Generator Interconnection Applications (LGIAs) and 340MW of Small Generator Interconnection Applications (SGIAs) filed with various western electric utilities.

Photovoltaic Power System Design – Experience in the conceptual design of 2 to 125 MW photovoltaic plants utilizing the AE Soloron® 333kW, the Xantrex Grid-Tie 500kW, and the SMA Sunny Central 500kW inverters and preliminary design of the Vaca Dixon Solar Station, which utilized SatCon Powergate 500kW inverters.

Power System Protection – Graduate-level studies in power system protection schemes and computations; Experience in setting SEL 421, 351, 551, 587, and 734 relays; Experience in setting the relays associated with a low voltage main-tie-main switchgear line-up and transfer scheme, and transmission line distance protection.

Flexible AC Transmission Systems (FACTS) – Designed and built a model fixed capacitor-thyristor controlled reactor (FC-TCR) static VAR compensator (SVC) to study power factor correction of an operational lumber mill; advanced study in power electronics

Computer Literacy:

- ETAP PowerStation
- MATLAB
- MathCAD
- AutoCAD
- SEL Accelerator and 5010

MEG E. RUSSELL

235 Edenberry Ave, Jupiter FL 33458 (310) 753-8185 (Mobile) Megerussell@gmail.com

EXPERIENCE:

1/08-Present - Project Director, Business Development, NextEra Energy Resources, LLC

Manages 15-person, cross-functional team responsible for obtaining federal and state permits for \$1B concentrated solar power project. Acts as member of team developing new investment opportunities by originating, progressing and executing greenfield utility-scale solar projects. Responsible for market analysis to identify new business opportunities and recommend investment priorities to senior management.

6/96-12/07 - Major, Acquisition/Contracting, United States Air Force

1/07-12/07 - Program Manager, Global Broadcast Service

Led 60-person team directing and managing all programmatic, budgetary, planning and test efforts for \$400M Joint Program in support of the Global War on Terror. Responsible for development, production, fielding, operations and support of OSD-level satellite communications program, bringing mission-critical intelligence data to warfighter

5/05-1/07 - Aide-de-Camp, Space and Missile Systems Center (SMC)

Professional assistant to the 3-star SMC commander in executive development position. Executive agent on official events involving commander with responsibilities that included schedule management, travel arrangement, and planning and execution of wide variety of social and official functions. Routinely interacted with senior OSD, Headquarters AF, COCOM, NRO, NGA and NSA leadership and staff members.

6/03-5/05 - Deputy Chief, Space Integration Branch

Lead for 10-person team to execute developmental planning tasks for space acquisitions. Center lead for capabilities planning process and horizontal integration of air, space, armament and C2 systems development.

6/00-6/03 - Assistant Professor of Aerospace Studies, University of Florida AFROTC

Responsible for recruiting, training and developing 160 future Air Force leaders annually. Directed leadership training, instructed academic course on National Security Affairs, and provided educational and career guidance.

6/98-6/00 – Executive Officer/Project Manager, Airborne Warning and Control Systems (AWACS) Led 5-person team providing personnel management and administrative support for 350+ person acquisition

program. Lead action officer for \$300M AWACS radar system improvement program.

6/96-6/98 - Contract Manager/Negotiator, Operational Contracting

Led all acquisition elements to include planning, negotiating, awarding and administering contracts for supplies and specialized needs in \$100M annual procurement division. Lead for cross-functional negotiation team.

Education:

2000 - MBA, Accounting Concentration, Western New England College

1996 - BS Mathematics, University of Florida

EXPERIENCE SUMMARY

Ms. Slusser has eight years of varied experience related to aspects of environmental planning, including projects for which she served as the social science lead, responsible for researching and reporting on land use, visual impacts, recreation, and environmental justice. Her participation in projects as a social science lead includes support for a third party Environmental Impact Statement for liquefied natural gas (LNG) siting and permitting projects and major natural gas pipeline projects. Her regulatory compliance experience includes projects such as the National Forest Plan Update for the Tongass National Forest and various natural gas pipeline and transmission line projects. Most recently, she has supported energy projects that have included the Blythe Energy Project Transmission Line, Gateway West Transmission Line Project, Jordan Cove Energy and Pacific Connector Gas Pipeline Project and Palomar Gas Pipeline Project, as well as the Genesis Solar Energy Project in southern California and multiple wind projects in Oregon, Nevada and California. Non-energy-based projects supported have included the Tongass National Forest Plan Adjustment DEIS, and the Juanita Creek JARPA stream restoration project. She is currently providing visual analysis, land use and public and agency comment management support for various energy projects through national energy programs for LNG, wind, solar, and natural gas pipelines. Andrea is a proficient writer and is currently working towards her Master of Landscape Architecture degree.

EDUCATION

BS, Natural Resources Planning, Humboldt State University, 2000 MLA, Landscape Architecture, University of Washington, in progress

PERTINENT TRAINING

Wilderness First Aid (WFA), February 2009

BLM Visual Resources Management Program Training, November 2008

FERC Regulatory Overview and Guidance Seminar, September 2008

Communication Skills Training, January 2008

Wind 101 Training, January 2008

Project Management Training (PM201), May 2007

First Aid/CPR/AED Trained and Certified, August 2006

National Environmental Policy Act (NEPA), September 2005

Hazardous Waste Operations and Emergency Response (HAZWOPPER), Aug 2003; Current 8-hour Refresher, June 2008

Waste Management Training (RCRA Awareness), most recently in June 2006

Oregon Worker Asbestos Abatement Training, June 2003

DOT /HM-126F Training for HAZMAT Employees, April 2003

CEOA Basics Workshop, November 2002

Highway Capacity Analysis/McTrans Software Training, May 2002

Project Management Training (PM 100), May, 2001

CORPORATION PROJECT EXPERIENCE

Associate Scientist, September 2009 – Present Gateway Transmission Line Project EIS, ID & WY

Working closely with a colleague, read and coded for analysis hundreds of public scoping letters and comments from the public. Categorized the comments and submitted the categorization over to a subcontracting firm for database entry and formal organization. To ensure that all letters are addressed, not duplicated or misplaced, organization is paramount, and Andrea and her colleague meticulously worked through the task with little oversight.



Visual Resources and Land Use Analyst, June – August 2009 Genesis Solar Energy Project, NextEra, near Blythe, CA

Assisted Senior Visual Resources Analyst Lee Anderson with desktop study of the site, site and vicinity visit and photography, mapping and landscape character study, including a meeting with the BLM visual resources specialist. Helped develop and finish the Visual Resources section of the AFC. Also wrote the Land Use section of the AFC.

Assistant Environmental Planner and Database Administrator, February 2009 – March 2010 Blythe Energy Project Transmission Line (BEPTL), CA

Prior to construction start, assisted with the fine-tuning and organization of various resources monitoring and safety plans. During construction, managed the processing and MS Access report generation of data collected by biological, cultural and paleontological construction monitors and environmental inspectors, which involved site visits and some computer use training. Supported the field crew with procurement of safety gear and vehicles, and assisted with variance management and Sharepoint site organization.

Visual Resources Lead, February 2008 Stateline Wind Resources Area, FPL, OR

Visual Resources exhibit author for the fourth Amended Site Certificate for a 100 MW, 67-turbine wind resource area in northeastern Oregon. Since the original project was approved by the Oregon Energy Facility Siting Commission (EFSC), the developer wanted to increase the size of the turbines, reducing the number required to meet the same energy output. Such an increase clearly presents a change in the visual impact of such a project, and the analysis was developed accordingly.

Assistant Scientist, July 2008 Newberry Geothermal, OR

Assisted with Northern Goshawk surveys, which involved navigating and walking long transects over varying terrain, properly handling broadcast equipment and recording environmental and bird response data.

Visual Resources Lead, February 2008

Multiple Solar Energy Generation Facility AFCs, eSolar, CA

Conducted visual resource analyses for multiple potential solar energy facility sites in Kern and Los Angeles Counties. Assisted with photography and GPS data recording in the field, then researched and wrote about the visual impacts such a project could have on the surrounding area, including sensitive sites such as the Pacific Crest Trail and Angeles National Forest.

Assistant Environmental Planner, October 2007 – December 2009 Palomar Gas Transmission Pipeline Project, FERC Third Party EIS, OR

Assisted the Social Sciences Task Lead with the Recreation and Visual Impacts sections, as well as served as the lead staff for tracking, coding and categorizing public scoping comments for this, another contentious and controversial natural gas pipeline project in Oregon.

Assistant Environmental Planner, October 2007

Lana'i Wind Resources Area, Environmental Assessment, HI

On short notice, wrote the land use, recreation, socioeconomic and environmental justice, cultural resources, air, noise and visual impacts sections for the EA. Also provided general document review and guidance on EA organization.

Social Sciences Lead, July 2006 - May 2009

Jordan Cove Energy Project (JCEP) / Pacific Connector Gas Pipeline (PCGP), FERC Third Party EIS, OR



The EIS for this project was broken up into three segments: LNG Vessel Waterway, LNG Terminal, and Natural Gas Pipeline. Environmental effects on the Coos Bay shipping channel, the coastal zone, and the inland pipeline route were analyzed and alternative routes considered. In addition to heading the social science-related EIS topics (land use, visual impacts, recreation and environmental justice), assisted the Project Managers (Tetra Tech and FERC) with public scoping meetings throughout the project area, as well as participated in interagency meetings and site visits. Also served as the lead staff for tracking, coding and categorizing public scoping and Draft EIS comments for this highly contentious and controversial project.

Assistant Environmental Planner, January 2006 - 2008

Tongass National Forest, Forest Plan and Environmental Impact Statement, AK

Assisting Project Manager with website updates and edits, traveling to assist with note-taking at meetings, collection and compilation of DEIS comments, and management of administrative/planning record.

Assistant Environmental Planner, September 2006 – March 2007 Guardian G-II Natural Gas Pipeline, FERC Third Party EIS, WI

Wrote alternatives section for the G-II pipeline DEIS, including analysis of new alternative routes based on scoping comments submitted by the public and existing land uses. The effort was complicated by applicant changing the route on two occasions, requiring new analysis and re-writing of sections.

Assistant Environmental Planner, September 2006

City of Kirkland, Juanita Creek Restoration Project, JARPA Application, WA

Assisted Project Manager with data collection for the city application for an urban stream restoration project in the Seattle area. Basic land use information had to be collected remotely and organized effectively for a timely application.

Assistant Environmental Planner, March 2006

Port of Long Beach, Liquefied Natural Gas (LNG) Terminal, Environmental Impact Statement, Response to Comments, CA

Assisted Project Managers with the response to numerous and complex public comments and incorporation of legal commentary.

Assistant Environmental Planner, February 2006

Tongass National Forest, Sitka Ranger District, OHV ATM Environmental Assessment, AK Assisted Project Manager with collection, review, and response to public comments to the EA.

Assistant Environmental Planner/Social Scientist, September 2005 – February 2006
Application of North Baja Pipeline, LLC to the Federal Energy Regulatory Commission for a
Certificate of Public Convenience and Necessity (North Baja Pipeline Expansion Project), CA
Developed the Land Use, Recreation and Aesthetics section (Resource Report 8) of FERC pre-filing
application for a natural gas pipeline through southeastern California. Used aerial photos, GPS and
construction drawings to identify land use types, pipeline routes and potential impacts to a major
recreation area. Worked with Visual Resources specialist to develop off-highway vehicle management
plan. Assisted in tabular data management, data request responses and final document preparation and
delivery.

Researcher, August 2005 – September 2005

Washington State Office of Archaeology and Historic Preservation, Economic Impact Study of Historic Preservation on the Economy of Washington State, WA

Assisting Project Manager with the collection and analysis of historic community data with the goal of determining the economic impact historical preservation has on the State's economy. Specific areas of



study include the financial effect of historic designation on properties, the economics of heritage tourism and the economic effects of historic structure rehabilitation and reuse. Only a dozen or so states have previously completed this type of study, so the project faces many challenges, including data sources, approach of data analysis and how to go about presenting the results.

Deputy Project Manager and Assistant Right-of-Way Specialist, November 2004 – April 2005 Utah Telecommunication Open Infrastructure Agency (UTOPIA), Fiber-to-the-Home Project, Salt Lake City, UT

The UTOPIA project is a semi-municipal project involving 14 Salt Lake City area cities placing and operating a complete fiber optic network to all residences and businesses within the participating cities. Andrea's tasks involved collecting the ROW information (usually in the form of subdivision plat drawings obtained from the Cities), manually transferring the information onto the engineer's project area maps, and using the County property information database to fill in ownership information for those parcels not covered by the plat drawings. Some fieldwork was required for obtaining information regarding wetland and river or canal crossings.

Assistant Environmental Planner/Social Scientist, June 2005 Multiple Wind Energy Sites Critical Issues Analysis, Confidential Client

Researched federal, state and local-level permitting requirements for a series of wind energy sites in Nevada and California. Main task was to research and develop land use and environmental compliance section of the CIA document, including finding zoning and land use allowances, determining need for permits and other compliance issues (e.g., special use, land use, drainage, reclamation, bird counts, FAA requirements), and examining special restrictions for existing weather monitoring station. Other tasks included identifying USGS 7.5 minute quadrangle maps for archaeology team, developing a MS Project schedule for the permitting process, and assessing recreational opportunities that may be impacted by the proposed project.

Assistant Project Manager/Social Scientist, November 2004, and April 2005 – July 2005 Grouse Creek, Park Valley Telecommunications Upgrade Project Environmental Assessment, Beehive Telephone Company

Researched and wrote soils section for the EA as well as some general setting and background text. Also assisted the Project Manager with client and subcontractor communication, getting proper route information for biology and archaeology field survey crews, and researched existing right-of-way widths for the route.

Assistant Scientist, May 2005

Lower Willamette River Sediment Sampling, US Army Corps of Engineers

Assisted the sediment sampling team with riverbed core gathering and processing. Core processing tasks included breaking down coring equipment to retrieve samples, observation of sample description and logging, homogenizing the samples for analysis, keeping samples legibly labeled, organized and temperature controlled for courier pick-up. Also assisted with surface sediment sampling on the water, where tasks included using tracking software to log the success or failure of each attempted sample, sample homogenization, labeling, organization, temperature control and days' end clean-up.

Assistant Environmental Planner/Social Scientist, April 2005

Florida Power and Light, Sutter Ranch/Woodward Expansion Critical Issues Analysis, Oklahoma Developed Environmental Justice section for a Critical Issues Analysis for a pair of wind farms in northwestern Oklahoma.

Natural Resources Planner, November 2004 – February 2005 Utah BLM, Utah BLM Fire Management Plan Environmental Assessments, Salt Lake City, UT



Through an Intercompany Agreement (ICA), Andrea assisted Tt MAXIM with the development of various sections for each of the five Utah BLM Field Offices. These sections included Recreation, Wild and Scenic Rivers, Wilderness Study Areas, Areas of Environmental Concerns, Wilderness, and Wilderness Characteristics.

Waste Coordinator, March 2003 - November 2004

Alcoa, Troutdale Primary Aluminum Smelting Facility Demolition and Remediation Project, Troutdale, OR

Served as Waste Coordinator for the demolition of the Reynolds Metals Aluminum plant in Troutdale, Oregon. Duties mainly consisted of waste and recyclable materials manifesting and shipment tracking, including regulated and hazardous wastes such as mercury, lead, PCBs and spent potliner, which contains cyanides. Also performed environmental protection inspections such as stormwater and soil contamination, as well as those mandated by RCRA and TSCA. Also regularly performed Environmental Health and Safety tasks, such as worker observation, photo documentation of demolition work and assisting with incident reports. Received excellent job performance reviews throughout the assignment.

Assistant Environmental Planner, November 2002

City of the Town of Mammoth Lakes, CA, Master Plan Water Update, Mammoth Lakes, CA Under the direction of the Project Manager, performed water velocity measurements as part of a team, using an electromagnetic sensor for both summer and winter stream water levels. Weather concerns made time a priority, and measurements were completed with time to spare. Worked in conjunction with engineering subcontractor, who surveyed the stream cross-sections as velocity measurements were taken. Reported all data back to the Project Manager and received positive feedback.

Assistant Environmental Planner, October 2002

County of Sacramento, CA, Quantitative Risk Analysis for the Bradshaw Landing Development, regarding the Santa Fe Pacific Terminal/Tank Farm, Rancho Cordova, CA

Researched and wrote Project Description, as well as conducted research on the existing hazardous materials terminal, and established emergency response plans as set out by the County of Sacramento, in response to concerns of potential acts of terrorism.

Assistant Project Manager/Environmental Planner, October 2002

Calpine Corporation, Project Description/Initial Study/Mitigated Negative Declaration/Mitigation Monitoring Plan, Lodi, CA

Researched and wrote sections on Land Use, Traffic and Transportation, Mineral Resources, Agriculture, and Population and Housing for the Initial Study. Time was of paramount concern, as client imposed an unusually quick completion schedule.

Assistant Environmental Planner, May - December 2002

Silicon Valley Power/City of Santa Clara, CA, Initial Study for Pico Power Plant, Traffic and Transportation, Application for Certification for Pico Power Plant, Land Use and Traffic and Transportation, Santa Clara, CA

Researched and wrote Traffic and Transportation section for the CEQA-required Initial Study. For the AFC, managed and conducted the required critical turning movement study (traffic counts), which entailed supervising eight traffic counters. Also researched and wrote the AFC sections on Land Use and Traffic and Transportation.

Assistant Environmental Scientist, May 2002

ECOSH Proposal Support, Factor 6 Environmental Compliance Occupation Safety and Health Contract, U.S. Army Corps of Engineers, Sacramento, CA



Assisted in the development of FACTOR 6 for the Environmental Compliance Occupation Safety and Health contract proposal to the Sacramento District. Submitted work was rated the highest of any firm submitting a proposal according to recent feedback from the Source Selection Team at the District. Searched hundreds of sources for the Small and Small Disadvantaged Business categories and data bases, also developed a table that clearly presented the findings of her research. This table was called out as the best presentation of the complex information that included the new NAICS codes that have replaced the former SIC or Standard Industry Codes.

Assistant Project Manager and Environmental Planner, January - February 2002 U.S. Bureau of Reclamation, East Park Reservoir Recreation Development Plan, Colusa County, CA

Managed a team of planners in the development of a new RDP for the East Park Reservoir area in rural Colusa County, CA. Objectives of the project are to present development options to the Bureau of Reclamation for the formal development of the East Park Reservoir area into a formal recreation area, including campgrounds, a boat ramp, a group campground, RV camping, and defined day use areas.

Assistant Project Manager and Environmental Planner, December 2001 Calpine Corporation, The Eureka Project, Samoa Peninsula, CA

Compiled background information for project team, gathered and put together team member's sections into a Critical Issues Review document for this proposed off-shore LNG terminal. In addition to editing, reviewing and compiling, also developed and wrote the highly praised Environmental and Recreational Opposition section, and developed the cover page graphics.

Assistant Project Manager and Environmental Planner, September 2001 County of Modoc, CA, Alturas Gasification Fluid Bed Combined Cycle (GFBCC) Technology Power Plant Critical Issues Analysis, Alturas, CA

Aided in the management of tasks for those working on the project, set out a "game plan" for getting the work accomplished in time to meet the deadline. Wrote portions of the Critical Issues Analysis, conducted research regarding the physical condition of the site and a description of the project in layman's terms.

Assistant Planner, September 2001

Sierra Pacific Industries, Surface Water Intake Study, Counties in the Northern Sierras, CA Collected numerous surface water quality data reports, as mandated by the State of California for all watersheds. Analyzed and organized the data to be presented as baseline data for the client for future reference and use. Project was indefinitely placed on hold by the Client as a result of the events of September 11, 2001.

Assistant Landscape Architect, August - September 2001 Department of the US Navy, Moffett Field Site 22, Mountain View, CA

Assisted Senior Landscape Architect Scott Muller with existing tree survey and inventory, aided with potential replacement tree research, locating of trees to be transplanted, and creation of new planting plan.

Assistant Environmental Scientist/Assistant Landscape Architect, August - September 2001 Calpine, Russell City Energy Center, Hayward, CA

Performed basic visual study on site (steam plume study). Also assisted Senior Landscape Architect with tree and shrub species research, planting plan, including color renderings.

Assistant Landscape Architect, July - August 2001 Florida Power and Light, Tesla Power Plant, Alameda County, CA



Aided Senior Landscape Architect with visual studies in the field, as well as the planting plan and landscaping concept write-up.

Assistant Environmental Scientist, June - September 2001

California Technology, Trade and Commerce Agency, Youth Development Center of Northern California (Pilot Model) Gantt Charts, Sacramento, CA

Developing a series of Gantt Charts to aid the CTTCA in the application and permitting process as they begin to prepare work for an Youth Development Center to serve Northern California's at-risk youth - a boarding school for at risk students that will emphasize community relationships, environmental sensitivity and vocational schooling.

Assistant Environmental Scientist, June 2001

City of Port Angeles, WA, Port Angeles Land Use Analysis, Port Angeles, WA

Assisted project manager remotely with land use analysis to determine whether the closed and dismantled Rayonier Lumber Mill site would be suitable for a rezone to residential use. Issues considered included current zoning and demand for residential development, as well as seismic stability, especially since the site had been constructed on fill and marine-influenced location.

Assistant Project Manager and Permitting Specialist, May 2001

California Technology Trade and Commerce Agency, Guidance Matrix, Sacramento, CA

Developed and produced a document geared for California's military base commanders to help them deal with environmental, sociological, and political issues increasingly appearing at their bases. Finished product will consist of an exhaustive matrix and a diagram of a typical military base and its physical and community-based relationships with the surrounding land and population.

Assistant Environmental Scientist, April 2001

Calpine, Southport Peaker Power Plant Critical Issues Analysis, Sacramento, CA

Performed basic land use and zoning research, both from texts such as the West Sacramento General Plan and Zoning Ordinance, as well as field research, including photography and basic mapping to bring back to the office and corroborate with existing maps and concepts of the potential project site. No fatal flaws were encountered.

PREVIOUS EXPERIENCE

Intern

City of Sunnyvale, Water Pollution Control Plant (WPCP), Sunnyvale, CA

Helped organize and implement environmentally-focused summer camp games and school programs.

Intern

City of Sunnyvale, Planning Department, Sunnyvale, California

Worked at the permit counter along side other planners dealing with developers and private citizens.

PROFESSIONAL ACCOMPLISHMENTS

Aided in research and update of database used to create the General Plan for the City of Blue Lake, 2000.

PROFESSIONAL AFFILIATIONS

Northwest Association of Environmental Professionals, member, 2005

American Planning Association, member, 2001

DISCIPLINE CODES



Ms. Andrea M. Slusser Associate Environmental Planner

Planner: Urban/Regional



SKILL SET

Biological Sciences

Aerial Photogrammetry Botanical Inventories Environmental Assessment

Environmental Impact

Statement

Environmental Permitting

Field Sampling

Plant Community Ecology

Plant Science

Soils

Vegetation Studies
Water Velocity Sampling

Wildlife

Regulatory Affairs

NEPA/CEQA

Clean Water Act

RCRA/TSCA/CERCLA Safe Drinking Water Act Social Science

Aesthetics Economics

Land Use Planning

Recreation

Visual Resources

LANGUAGE SKILLS

German Knowledge Level: Secondary: Familiar

PROFESSIONAL REFERENCES

Penny Eckert, Project Manager, 425-482-7847

James Chatters, Archaeology Specialist, 425-922-8205, Amex

Brent Moore, Business Administrator and Urban Planner, Parametrix

RELATED COMPANY INFORMATION

Payroll Number: 503719 Employment Status: Full Preferred First Name: Andrea Office Location: Seattle Hire Date: 4/16/01

Years with Other Firms: 0 Years with Current Firm: 6 Total Years Experience: 6

Supervisor: Stephen J. Negri, Biologist/Ecologist

Office Phone: (425) 482-7702

Cell Phone:

Fax: (425) 482-7642

E-mail Address: Andrea.Slusser@tteci.com

Other E-mail Address (if any): Resume Last Revised: 2007-10-25



Kenny Stein Environmental Manager kenneth.stein@nexteraenergy.com

NextEra Energy Resources 700 Universe Boulevard Juno Beach, FL. 33408 Phone: 561.691.2216

Resume / Qualifications

- I am currently employed by NextEra Energy Resources, Inc. as an Environmental/Permitting Manager with a focus on permitting power projects in the western U.S. I have held this position for six years. Prior to that I was an Environmental/Permitting Manager for Constellation Energy with a focus on permitting power projects in the western U.S.
- I graduated with a law degree from the University of Oregon School of Law, with a focus on Environmental Law, in 1988 and graduated from the University of Michigan with a B.S. in Environmental Science in 1984.
- My current position involves managing all environmental aspects of siting, permitting, and construction compliance for solar power projects including the preparation and processing of all federal, state and local permit applications. I oversee all environmental technical areas associated with permitting including project description, biology, soil and water, cultural resources, paleontological resources, visual resources, land use, air quality, alternatives, community outreach, etc. My educational background in both environmental science and environmental law, along with my experience in permitting other complex power projects in CA through the CEC, qualify me to manage the multi-disciplinary aspects of solar power plant permitting in CA.



Resume

SUMMARY

Mr. Tietze is a Professional Geologist, Certified Hydrogeologist and Certified Engineering Geologist in California. He has over 25 years of experience performing and managing environmental assessment, water supply, permitting, compliance and remediation projects. Over his broad career, Mr. Tietze gained expert knowledge of project management, surface and groundwater hydrology, environmental regulatory compliance, project planning and development strategy, industrial decontamination, and environmental impact assessment. He has participated in and managed many multi-disciplinary environmental assessment teams, and worked closely with a variety of industrial, commercial, utility and municipal clients. Mr. Tietze is currently located in WorleyParsons' Folsom office, where he is the Location Manager for the WorleyParsons Infrastructure & Environment group and supports the WorleyParsons Power Engineering group on site selection studies, project constraint and feasibility evaluations, water resource studies and environmental permitting for renewable energy and other power projects throughout California and in the western states. In addition, Mr. Tietze manages environmental investigation and cleanup projects, water resources impacts analyses, and regulatory liaison for a variety of industrial and municipal clients.

EXPERIENCE

2004 - Present Sacramento Location Manager, WorleyParsons Infrastructure & Environment

Siting/Constraints Analysis

Managed opportunity and constraints analysis of 8,000-acre property in Wyoming underlain by coal deposits. Uses evaluated included ranching, planned development, coal mining, coal bed methane extraction, coal power plant, IGCC power plant and synfuel plant. GIS analysis of environmental constraints, land ownership, gas pipelines, water availability, transmission and roads. Developed matrixes comparing regulatory requirements, permit lead times, environmental, engineering and financial constraints and opportunities. Developed high level cost estimates for coal mining, IGCC power plant, and synfuel plant.

Managed selection of candidate sites for concentrating solar power plant (CSP) development in the jurisdictions of four utilities in California. GIS-based analysis was based on insolation, topography, avoidance of sensitive managed lands and proximity to transmission, gas and potential cooling water sources. Specific parcels were identified for further consideration.

Managed CSP site selection for a major utility using geospatial approach that combines environmental, engineering and economic criteria. Several regions were screened for overall ability to support project needs (insolation, transmission, water, gas and land availability) and constraints (topography, zoning, sensitive habitat and land use). A list of refined ranking criteria was developed weighted based on potential influence on overall project costs and revenue. A grid was established across a broad study area, the cost and revenue were summed for each grid node, contoured and overlain with the outlines of potentially available parcels. The project provided the client with a tool to evaluate and compare specific parcels for potential acquisition based on revenue and relative cost, including externalities.

Environmental Permitting and Compliance

Managed environmental permitting and mitigation measure implementation for design and construction of high voltage AC/DC converter stations as part of the San



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Francisco Trans Bay Cable project.

Managed preparation of design, operation and maintenance plan for an evaporation pond and bioremediation land farm unit at a power plant in the Mojave Desert. The impoundments were permitted as Class II Surface Impoundments.

Managed preparation of an Aquifer Protection Permit for an evaporation pond and bioremediation land farm unit for a solar power plant in Arizona.

Estimated environmental compliance costs associated with decommissioning a power plant in Watsonville, California. Costs evaluated included management and removal of hazardous materials and waste, asbestos and lead-based paint surveys and abatement, and post-decommissioning confirmation sampling.

Prepared a Decommissioning and Reclamation Plan and cost estimate for a large solar power plant on BLM land in the Mojave Desert.

Performed investigations in support of a Section 404 Permit for levee removal for a farm bordering estuarine wetlands in Bolinas.

Managed evaluation of hydrology and water quality, hazards and hazardous materials, and public utility sections of a CEQA EIR for a controversial commercial project impacted by limited water resource availability in an overdrafted basin.

Managed CEQA evaluations and preparation of a Conditional Use Permit application for a proposed biodiesel plant.

Hydrogeology

Managed groundwater studies under NEPA for Indian casino and hotel projects in Rohnert Park, Lakeville, Madera and North Fork California, and in Louisiana. Assessed the impact of groundwater supply pumping on regional groundwater resources and nearby water supply wells. Work included evaluation of hydrogeology, groundwater level trend analysis, regional and local groundwater demand, modeling of interference drawdown and recharge loss, and impacts on specific wells. In addition, levels of significance were evaluated and mitigation measures were proposed and evaluated.

Managed groundwater resources investigations for solar power projects in California, Nevada, Arizona and New Mexico, including test well programs to over 1,800 feet depth, aquifer testing programs, numerical or analytical modeling programs, and assessment of project and cumulative impacts to water and biological resources.

Managed geophysical investigations of aquifer characteristics and hydrostratigraphy using time-domain electromagnetics and seismic refraction at three sites in California.

Well and stratigraphic evaluation using geophysical borehole logs, well tracer dye testing and pumping tests to assess well and formation hydraulic and water quality profiles.

Managed geophysical investigation of subsurface soil conditions using shear wave velocity profiling and seismic refraction.

Managed modeling of groundwater drawdown impacts, changes in water budget



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and changes in surface water flow from development of a groundwater supply for the Cache Creek Casino in Yolo County, California.

Contaminated Sites

Managed investigation, feasibility and cost recovery litigation for 40 dry cleaner sites in the City of Merced.

Managed groundwater monitoring, plume and hydrostratigraphic interpretation for the Central Truckee Meadows Remediation District in Reno and Sparks, Nevada.

Managed the monitoring of multi-completion nested sentinel monitoring wells throughout the City of Dinuba to assess potential impacts by MTBE. Reviewed investigation and cleanup efforts throughout the city on an ongoing basis.

2003 - 2004 California Operations Manager, TetraTech MFG

1994 - 2003 Senior Hydrogeologist, TetraTech MFG, San Francisco, California

Environmental Assessment and Permit Compliance Review for a wood-waste biomass power plant. Work included compliance evaluation of water discharge, air emissions, storm water management, groundwater monitoring, ash disposal, and other waste management.

Managed audits of a large portfolio of forest products industry sites for compliance in the areas of storm water (SWPPP and SWMP); Spill Prevention Control and Countermeasures (SPCC); waste/hazardous waste management; hazardous materials management; domestic water supply monitoring; landfill monitoring and closure; hazard communication; and Toxic Release Inventory (TRI) reporting.

Performed and managed hydrostratigraphic and contaminant transport evaluations for Federal and State Superfund sites.

In support of developing a Total Maximum Daily Load (TMDL) for mercury in the Guadalupe River Watershed, conducted a survey of the extent, stability and transport of dispersed mercury mine tailings in the New Almaden Mining District and all streams tributary to the Guadalupe and Alamitos Creek watersheds.

Prepared a risk management plan for long term management of a contaminated site under construction and operations scenarios. The plan included an evaluation of potential human health risks and specified control and management measures for facility maintenance and soil management during construction.

Managing city-wide multi-depth groundwater monitoring program to protect and manage a municipal well field in an area impacted by MTBE.

Managed investigation and cleanup of pentachlorophenol (PCP) and dioxins adjacent to a sensitive estuary. Because of the high dioxin concentrations, work was conducted in Level B and Level C PPE, an air monitoring program was implemented and excavation equipment was tested to confirm decontamination.

Consultation regarding waste management and control of environmental releases during demolition of a large paper mill. Work included waste characterization,



Resume

evaluation of demolition options for a power boiler with hazardous waste residue, characterization of dust in site buildings for lead, and consultation regarding contractual disputes with the demolition contractor.

Managed decontamination of facilities affected by PCBs, asbestos, beryllium dust, metal residues and lead-based paint. Prepared plans for decontamination, sampling and analysis, health & safety, and waste management, then oversaw and documented implementation of the work.

1985 - 1994 Associate Geologist, Lowney Associates, Mountain View, California

Managed evaluation of hazards and hazardous materials sections of a CEQA EIR for the Lincoln Auzerais Specific Plan in San Jose, and for the San Jose Horizon 2020 General Plan.

Environmental management for reclamation of a quarry in asbestos-containing serpentine. Tasks included characterization sampling; baseline air monitoring; test plot grading, air monitoring and emissions modeling; development of a reclamation/grading plan to safeguard public health for anticipated commercial and residential end use; development of site controls and safe work practices; and construction quality assurance and air monitoring during quarry reclamation.

Performed fault rupture hazard investigations for sites located on the Hayward, North Calveras, South Calaveras, Silver Creek, and Monte Vista Faults. Performed engineering geologic, seismic hazard and slope stability investigations for a variety of residential developments in California.

EDUCATION

Graduate Studies in Hydrogeology (Completed course work for Master of Science) - San Jose State University

B.S., Geology - San Jose State University, 1984

REGISTRATIONS/AFFILIATIONS

Professional Geologist - California, No. 5698

Certified Hydrogeologist - California, No. HG 63

Certified Engineering Geologist - California, No. EG 1803

PUBLICATIONS/PRESENTATIONS

Contributing author of A Landowner's Manual, Managing Agricultural Irrigation Drainage Water – A Guide for Developing Integrated On-Farm Drainage Management Systems, developed for the California State Water Resources Control Board.

Principal author of *Guidelines for Protecting Aquatic Habitat and Salmon Fisheries for County Road Maintenance*, a public works operation and maintenance manual intended for use in Sonoma, Marin, San Mateo, Santa Cruz and Monterey counties. The manual identifies BMPs for compliance with requirements related to Endangered Species Act listing of Coho Salmon and Steelhead Trout.

(713) 680-3881 (H) (713) 382-0578 (C) ltun@comcast.net

SUMMARY

Experienced energy professional with broad knowledge of natural gas (transport and storage) and power (asset management, development, and transmission) industries. Proven track record in transmission, trading, structuring and contracting mid to long-term transactions. Involved in divestitures, strategic investments, term supplies, transport and storage, tolls and energy management transactions. Working knowledge of the US markets.

EXPERIENCE

Nextera Energy Resources, Houston, TX (October, 2009 - Present)

Director, Regional Transmission West

- Responsible for transmission interconnection and transmission service related to existing and development projects in WECC.
- Lead transmission specialist for Wind and Solar power projects under development in CAISO, Pacific Northwest and Desert Southwest.
- Responsible for providing regulatory and strategic transmission guidance to protect existing and development assets.

Montgomery Power Partners LP, Magnolia, TX (August, 2008 – October, 2009)

VP, Asset Optimization and Valuation

- Responsible for optimization and hedging decisions on combined cycle plants in ISO-NE and ERCOT
- Provided valuation assessments on development projects in WECC, ERCOT, and Northeast
- Led transmission interconnection processes for development projects in CAISO and MISO.

BG Energy Merchant LLC, Houston, TX (February, 2007 – May, 2008)

Director, Northeast Trading and Optimization

- Managed three combined cycle plants totaling 1200MW in ISO-NE. Provided daily dispatch and forward gas and power hedging decisions.
- Instrumental in successfully integrating newly acquired power assets into BG's asset portfolio.
- Setup contracts with PJM, NE, NY and MISO.
- Manage a speculative trading book warehousing basis risk and non-hub trades.

Navigant Consulting Inc., Houston, TX (August, 2005 – February, 2007)

Associate Director, Markets and Transactions – Energy

- Led an expert witness team for a fleet of large power plants (500-1000MW) in MISO, WECC and NYISO. Provided market valuations, transmission assessments, market liquidity, and fuel supply. Working closely with lead attorneys and client(s) senior managers resulted in successful recovery of significant liquidated damages.
- Provided an expert opinion on a nuclear power plant in Europe.
- Supported various engagements related to power plant acquisitions and development, LNG entry strategies, and development of marketing strategies for multinational clients.

Cinergy Marketing and Trading, Houston, TX (October, 2003 – March, 2005)

Director, Gas Origination, Transport and Storage

- Co-managed a large asset management transaction with over 800MMcf of peak demand and transport on Texas Gas, Tennessee and Columbia and approximately 10Bcf of storage.
- Originated gas asset transactions including monetization of Northeast transport and storages related to a cogeneration facility and development of a 10Bcf salt cavern storage in TX.
- Executed a gas supply agreement for a 900MW power plant in Mississippi.

Cinergy Services, Inc., Houston, TX (May, 2001-October, 2003)

Director, Power Origination

- Developed and executed a wholesale marketing plan for Munis, Large Industrials, IPPs and IOUs in California, Pacific Northwest, and Northeast ISO's.
- Completed transactions with LDC's, and large industrials, involving shaped load supplies at non-hub delivery points, load following within preset bands, buying and selling of daily and peaking options.

Tractebel Energy Marketing, Inc., Houston, TX (May, 1998 – May, 2001)

Director/Manager, Origination

- Structured and contracted a 20 year tolling transaction of a 900 MW cogen plant with 4 separate unit characteristics in Louisiana that added 71% (\$76M in RAROC) of net value created for all of North American operations in year 2000.
- Developed transactions involving mid to long-term power and gas supply and demand with IPP's, LDC's and municipals.
- Worked with power development on hedging developed plants in Pacific Northwest (520MW in Chehalis, WA), TVA (780MW in Red Hill, MS), and ERCOT (340MW in Ennis, TX).
- Worked on tolling and asset acquisition transactions grossing over 3000MW in ERCOT, ECAR, Entergy, PJM, and NYPP.

Manager, Trading

- Structured term trader for PJM and Northeast.
- Managed a basis book for Northeast markets.
- Managed seasonal diversity contracts with a large Canadian utility.
- Instrumental in Tractebel becoming a prominent physical player in the Northeast.

Manager Transmission and Operations

- Managed scheduling operations and real time trading desk (10 staff persons)
- Built the real time trading desk to arbitrage between power pools.
- Transmission specialist on numerous long-term structured transactions involving major northeast utilities such as Boston Edison, NYSEG and Bangor Hydro.

Williams Energy Services Company, Tulsa, OK (September, 1997 – May, 1998)

Transmission Account Manger, Structure Desk

- Played a major role (transmission, location premium, and must-run status) in SoCal Ed divestiture and successful closing of 4000 MW of tolls involving 3 separate power plants.
- Developed the merchant transmission concept and convinced Williams to joint partner with a northeast utility.
- Structured and valued energy supply proposals (City of Anaheim, Riverside, and Vineland municipals), long-term tolling transactions (AES 4000, Ironwood, Red Oak, and Sithe Boston).

Northeast Power Coordinating Council, New York, New York (August, 1993- August, 1997)

Transmission Engineer - Operations Planning

- Performed numerous system planning and operation load-flow and stability studies to identify regional transmission constraints and to devise cost effective system improvement solutions.
- Represented member companies at various NERC working groups and committees.
- Participated in development of FERC NOPR's on Open Access Transmission Rules 888 and 889.
- Chaired and represented NPCC on Inter and Intra-regional operation and planning activities.

New York Power Authority, New York, New York (September, 1990- August, 1993)

Associate Engineer - Operations Planning Department

- Conducted transfer capability and transmission reinforcement studies using advanced computer simulations to provide daily system reliability limits.
- Designed and implemented special protective relay schemes for generation and transmission optimization.

EDUCATION

New York University, New York, NY Leonard N. Stern School of Business MBA (Finance & International Business), May, 1996

Drexel University, Philadelphia, PA B.S.E.E (Power Systems, Controls Systems & Communications), June, 1990